

**CITY OF HOUSTON  
BEST VALUE BID  
HEATING, VENTILATION, AND AIR  
CONDITIONING SERVICES FOR VARIOUS  
DEPARTMENTS  
SOLICITATION NO.: S19-L29319**

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**Date Issued:** October 16, 2020

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**Pre-bid Conference:** October 27, 2020 @ 2:00 P.M.  
Pre-Bid Via Conference Call  
Conference Call # (936) 755-1521  
Conference Call ID# 958 089 281  
(Telephone must be on mute during meeting)

**Pre-bid Questions Deadline:** November 2, 2020 @ 4:00 P.M.

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**Solicitation Due Date:** February 18, 2021 @ 10:30 A.M.

**Solicitation Contact Person:** Roy Korthals  
Senior Procurement Specialist  
roy.korthals@houstontx.gov  
832-393-8734

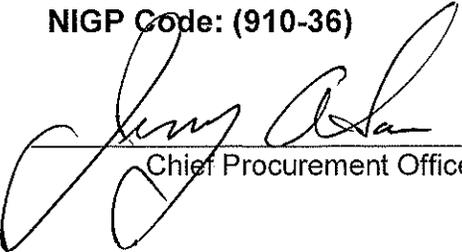
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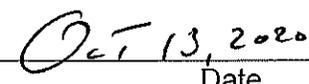
**Project Summary:** Heating, Ventilation, and Air Conditioning services for a three (3) year term, with two (2) one-year options.

**Project Description:** This proposed contract is to provide Heating, Ventilation, Air Conditioning (HVAC), and Building Automation Systems (BAS) services to various City facilities for various departments throughout the City of Houston. The types of services required are repairs, preventative maintenance, full service, water treatment, other work services, replacement and installation services.

**NIGP Code: (910-36)**

**MWBE Goal: 11%**

  
\_\_\_\_\_  
Chief Procurement Officer

  
\_\_\_\_\_  
Date

## 1.0 GENERAL INFORMATION

The City of Houston (City) is seeking bids to provide the services in Part 1, 2, 3, and 4 [Scope of Work]:

- 1.1 Sealed bids shall consist of the following, each to be labeled with the assigned Solicitation Number L26673, located on the first page of this BVB:
  - 1.1.1 **Two (2)** hard copies of the bid package, including one (1) printed original signed in blue ink on the Official Signature Page by an authorized officer of the bidder;
  - 1.1.2 **One (1)** USB flash drive containing a scanned electronic copy of your original bid package (to include the hard copy of the Electronic Bid Form and all required forms designated in Table-1, Section 2.3 below) in a sealed envelope/box; and
  - 1.1.3 **One (1)** hard copy or One (1) USB flash drive containing electronic copies of the requested financial information in a separate sealed envelope/ box labeled with "Financial Information," along with the assigned Solicitation Number.

All of the information above should be sent to:

City Secretary's Office  
City Hall Annex, Public Level  
900 Bagby St.  
Houston, Texas 77002

- 1.2 The deadline for the submittal of the bid to the City Secretary's Office is no later than the date and time indicated on the first page of the BVB document. All bids will be opened and publicly read in the City Council Chamber, City Hall Annex, Public Level, 900 Bagby St. at 11:00 AM on the solicitation due date. Failure to submit the required number of copies may be cause for disqualification from the BVB process.

Once the award is made, a bid tabulation for this procurement may be posted and made publicly available on the Strategic Procurement Division's website.
- 1.3 Bidders may elect to mail or personally deliver their bids to the City Secretary's Office. Bidder(s) may submit their bid to the City Secretary's Office any time prior to the stated deadline.
- 1.4 The City shall bear no responsibility for submitting responses on behalf of any bidder.

## 2.0 BEST VALUE BID FORMAT

- 2.1 The bid should be electronically generated, printed and signed in original ink. The bid should not be submitted in elaborate or expensive binders. Legibility, clarity, and completeness are important and essential.
- 2.2 The bid must be signed by an individual(s) legally authorized to bind the bidder(s) and the bidder shall hold the pricing contained therein for a minimum of 180 days following the day this Official Bid Form is opened by the City.

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- 2.3 Documents and Form: The complete bid packet (electronic and hard copy) shall consist of the following information. City-required forms are available at: <http://purchasing.houstontx.gov/forms.shtml>

<b>TABLE 1 – REQUIRED BID FORMS</b>
Signed Official Signature Page Signed in Blue Ink
Hard Copy of Electronic Bid Form (E-bid Website Pricing Form)
Conflict of Interest Questionnaire
Pay or Play – 1A, Program Acknowledgement Form
Pay or Play – 2, Certification of Agreement Form
Hire Houston First Designation
References
Ownership information Form
M/WBE Letter of Intent Forms (11% Goal)
One (1) Non-Protected Electronic Flash Drive

Table 2 lists other documents and forms that should be viewed/downloaded from the City's website <http://purchasing.houstontx.gov/forms.html>, but are not required to be submitted with the bid. The City will request these forms, as applicable, to be completed and submitted to the City by the recommended/successful bidder:

<b>TABLE 2 - DOCUMENTS &amp; FORMS</b>
EEOC
Certificate of Insurance and Policy Endorsements
Sample Insurance Over \$50,000
Insurance Endorsements
Drug Forms
Pay or Play Office of Business Opportunity & Contract Compliance Q & A
Pay or Play Office of Business Opportunity & Contract Compliance Requirements
Pay or Play Contractor/Subcontractor Payment Reporting Form
Pay or Play Contractor/Subcontractor Waiver Request
Pay or Play List of Participating Subcontractors
Criminal Justice Information Services (CJIS) Compliance Addendum (Applicable to Houston Police Department (HPD) Occupied Facilities)

**3.0 PRE-BID CONFERENCE:**

- 3.1 A Pre-bid Conference will be held at the date, time, and location as indicated on the first page of the BVB document. Interested bidder(s) should plan to attend. It will be assumed that potential bidder(s) attending this meeting have reviewed the BVB in detail, and are prepared to bring up any substantive questions not already addressed by the City.

**4.0 ADDITIONAL INFORMATION AND SPECIFICATION CHANGES:**

- 4.1 Requests for additional information and questions should be addressed to the Finance Department, Strategic Procurement Division Buyer, Roy Korthals, telephone: 832.393-8734, or by e-mail to: [roy.korthals@houstontx.gov](mailto:roy.korthals@houstontx.gov), no later than **November 2, 2020 at 4:00 P.M.** The City shall provide written response to all questions received in writing before the submittal deadline. Questions received from all bidder(s) shall be answered and sent to all

bidder(s) who are listed as having obtained the BVB. Bidder(s) shall be notified in writing of any changes in the specifications contained in this BVB.

**5.0 LETTER(S) OF CLARIFICATION:**

- 5.1 All Letters of Clarification and interpretations to this Solicitation shall be in writing. Any Letter of Clarification(s) or interpretation that is not in writing shall not legally bind the City. Only information supplied by the City of Houston in writing or outlined in this BVB should be used in preparing bid responses.
- 5.2 The City does not assume responsibility for the receipt of any Letters of Clarification sent to bidder(s).

**6.0 EXAMINATION OF DOCUMENTS AND REQUIREMENTS:**

- 6.1 Bidders shall carefully examine all BVB documents and thoroughly familiarize themselves with all requirements prior to submitting a bid to ensure that the bid meets the intent of this BVB.
- 6.2 Before submitting a bid, each bidder shall be responsible for making all investigations and examinations that are necessary to ascertain conditions and requirements affecting the requirements of this BVB. Failure to make such investigations and examinations shall not relieve the bidder from obligation to comply, in every detail, with all provisions and requirements of the BVB.

**7.0 EXCEPTIONS TO TERMS AND CONDITIONS:**

- 7.1 A bid that takes exception to a material requirement of any part of the Solicitation, including terms and conditions, or is otherwise non-compliant with the provisions herein, may be rejected.

**8.0 ACCEPTANCE AND REJECTION OF BIDS:**

- 8.1 The City reserves the right to accept or reject, in whole or in part, any or all bids received to the extent non-compliant with the provisions herein and to make award on the basis of individual items or combination of items, as it is deemed most advantageous or in the best interest to the City.
- 8.2 The City may accept this bid by issuance of a Contract covering award of said bid to this bidder at any time on or before the 180th day following the day this official bid Form is opened by the City. This bid shall be irrevocable for 180 days, but shall expire on the 181st day unless the parties mutually agree to an extension of time in writing.

**9.0 GENERAL CONDITIONS**

- 9.1 This BVB does not commit the City to award a Contract, issue a Purchase Order, or to pay any costs incurred in the preparation of a bid in response to this request.
- 9.2 The bid will become part of the City's official files without any obligation on the City's part. All bids shall be held confidential from all parties other than the City until after the bids are opened and publicly read. Afterward, the bids shall be available to the public.
- 9.3 The City shall not be held accountable if material from responses is obtained without the written consent of the bidder by parties other than the City, at any time during the bid evaluation process.
- 9.4 In the event a bidder submits trade secret information to the City, the information must be clearly labeled as a "**Confidential.**" The City will maintain the confidentiality of such trade secrets to the extent provided by law.
- 9.5 Bidder(s) shall not offer any gratuities, favors, or anything of monetary value to any official or employee of the City (including any and all members of the bid evaluation committees).
- 9.6 Bidder(s) shall not collude in any manner, or engage in any practices, with any other bidder(s), which may restrict or eliminate competition, or otherwise restrain trade. This is not intended to preclude subcontracts and joint ventures for the purposes of: a) responding to this BVB; or b) establishing a project team with the required experience and/or capability to provide the goods or services specified herein.

- 9.7 Bidder(s), their authorized representatives and their agents are responsible for obtaining, and will be deemed to have, full knowledge of the conditions, requirements, and specifications of the BVB at the time a bid is submitted to the City.
- 9.8 Clerical support and reproduction of documentation costs shall be the responsibility of the Prime Contractor.
- 9.9 Prime Contractor personnel essential to the continuity, and the successful and timely completion of the project should be available for the duration of the project unless substitutions are approved in writing by the City Project Director.
- 9.10 The Prime Contractor will be expected to adhere to all standard contractual requirements of the City which shall include, but are not limited to, provisions for: Time Extensions; Appropriation of Available Funds; Approvals; Term and Termination; Independent Contractor; Business Structure and Assignments; Subcontractors; Parties in Interest; Non-Waiver; Applicable Laws; Notices; Use of Work Products; Equal Employment Opportunity; Force Majeure; and Inspections and Audits.
- 9.11. Prime Contractor must promptly report to the City Project Director any conditions, transactions, situation, or circumstances encountered by the Prime Contractor which would impede or impair the proper and timely performance of the Contract.
- 9.12 The City reserves the right to waive any minor informality concerning this BVB, or to reject any or all bids or any part thereof to the extent non-compliant with the terms herein.
- 9.13. The City reserves the right to request clarity of any bid after they have been received.
- 9.14 After Contract execution, the successful bidder shall be the Prime Contractor and responsible party for contracting and communicating the work to be performed to subcontractors, and for channeling other information between the City and subcontractors. Any subcontracting must be specified in the BVB. Any subcontracting not specified in the BVB will need prior written approval from the Chief Procurement Officer.
- 9.15. Prime Contractor assumes total responsibility for the quality and quantity of all work performed, whether it is undertaken by the Prime Contractor or is subcontracted to another organization.
- 9.16. If subcontractor involvement is required in the use of license, patent, or proprietary process, the Prime Contractor is responsible for obtaining written authorization from the subcontractor to use the process, or provide another process comparable to that which is required and which is acceptable to the City, all at no additional cost or liability to the City.
- 9.17 The City reserves the right to inspect the bidder's current place of business to evaluate equipment condition and capabilities, staff experience, training and capabilities, and storage capabilities as they relate to the performance of this contract.
- 9.18 The bidder must be able to demonstrate upon request that it has satisfactorily performed services similar to the services specified herein. The bidder will provide records of warranty and repair services upon request by City. The City shall be the sole judge as to whether the services performed are similar to the scope of services contained herein and whether the bidder is capable of performing such services.

## **10.0 SPECIAL CONDITIONS**

### **10.1 PROTEST:**

Protests should be filed in accordance with the City of Houston Administrative Policy (A.P. No. 5-12) [http://www.houstontx.gov/policies/administrative\\_policies.html](http://www.houstontx.gov/policies/administrative_policies.html)

## **10.2 NO CONTACT PERIOD:**

Neither Proposer(s) nor any person acting on Proposer(s)'s behalf shall attempt to influence the outcome of the award by the offer, presentation or promise of gratuities, favors, or anything of value to any appointed or elected official or employee of the City, their families or staff members. All inquiries regarding the solicitation are to be directed to the designated City Representative identified on the first page of the solicitation.

With the exception of Proposer's formal response to the solicitation and written requests for clarification during the period officially designated for such purpose by the City Representative, neither Proposer(s) nor persons acting on their behalf shall communicate with any appointed or elected official or employee of the City, their families, or staff through written or oral means in an attempt to persuade or attempt to persuade or influence the outcome of the award or to obtain or deliver information intended to or which could reasonably result in an advantage to any Proposer from the time of issuance of the solicitation through the pre-award phase and up to the date the City Secretary publicly posts notice of any City Council agenda containing the applicable award. However, nothing in this paragraph shall prevent a bidder from making public statements to the City Council convened for a regularly scheduled session after the official selection has been made and placed on the City Council agenda for action, or to a City Council committee convened to discuss a recommendation regarding the solicitation.

## **10.3 MINORITY AND WOMEN BUSINESS ENTERPRISES ("M/WBE")**

Bidder shall comply with the City's M/WBE programs as set out in Chapter 15, Article V of the City of Houston Code of Ordinances. Bidder shall make good faith efforts to award subcontracts or supply agreements in at least the value stated in this Agreement to M/WBE's. Bidder acknowledges that it has reviewed the requirements for good faith efforts on file with the City's Office of Business Opportunity (OBO) and will comply with them.

## **10.4 ANTI-BOYCOTT OF ISRAEL**

Bidder certifies that bidder is not currently engaged in, and agrees until the funds are exhausted under this purchase order not to engage in, the boycott of Israel as defined by Section 808.001 of the Texas Government Code.

## **10.5 ZERO TOLERANCE FOR HUMAN TRAFFICKING**

The City has a zero tolerance for human trafficking and, per Executive Order 1-56, City funds shall not be used to promote human trafficking. City vendors are expected to comply with this Executive Order and notify the City's Chief Procurement Officer of any information regarding possible violation by the vendor or its subcontractors providing services or goods to the City. The Executive Order is available on the City's website: <http://www.houstontx.gov/execorders/1-56.pdf>

## **10.6 PRESERVATION OF CONTRACTING INFORMATION**

The requirements of Subchapter J, Chapter 552, Texas Government Code, may apply to this bid [or solicitation] and the Contractor or vendor agrees that the contract can be terminated if the Contractor or Vendor knowingly or intentionally fails to comply with a requirement of that subchapter."

## **10.7 HIRE HOUSTON FIRST**

In an effort to promote economic opportunity for Houston businesses and to support job creation, the Hire Houston First Program grants the City of Houston the ability to give a preference to eligible local companies, as long as their pricing is competitive. To be eligible for the preference, a company must be designated as a **City Business (CB) or Local Business (LB)** under the Hire Houston First Program **prior** to submittal of bid. Bidders must submit a completed *Declaration of Hire Houston First Designation* form with the bid.

To complete an application for the Hire Houston First program, visit <http://www.houstontx.gov/obo/hirehoustonfirst.html>. Applications can be submitted to the City of Houston Office of

Business Opportunity via the online application system, by e-mail to HIREHOUSTONFIRST@houston.tx.gov, by fax to 832-393-0646, or hand delivered.

Note: Participation in the Hire Houston First program is not required to bid on City of Houston contracts.

**Award of Procurement of \$100,000 or More for Purchase of Non-Professional Services, Including Construction Services:**

THE CITY WILL AWARD THIS PROCUREMENT TO A "CITY BUSINESS," AS THAT TERM IS DEFINED IN SECTION 15-176 OF THE CITY OF HOUSTON CODE OF ORDINANCES ("THE CODE")

- IF THE BID OF THE LOCAL BUSINESS IS THE LOWEST RESPONSIBLE BID OR IS WITHIN 3% OF THE LOWEST BID RECEIVED, AND
- UNLESS THE USER DEPARTMENT DETERMINES THAT SUCH AN AWARD WOULD UNDULY INTERFERE WITH CONTRACT NEEDS, AS PROVIDED IN SECTION 15-181 OF THE CODE.

IF THERE IS NO BID OF A LOCAL BUSINESS THAT MEETS THESE CRITERIA, THE CITY WILL AWARD THE PROCUREMENT TO THE LOWEST RESPONSIBLE BIDDER

**Award of Procurement under \$100,000 Purchase of Non-Professional Services Including Construction Services:**

THE CITY WILL AWARD THIS PROCUREMENT TO A "LOCAL BUSINESS," AS THAT TERM IS DEFINED IN SECTION 15-176 OF THE CITY OF HOUSTON CODE OF ORDINANCES

- IF THE BID OF THE CITY BUSINESS IS THE LOWEST RESPONSIBLE BID OR IS WITHIN 5% OF THE LOWEST BID RECEIVED, AND
- UNLESS THE USER DEPARTMENT DETERMINES THAT SUCH AN AWARD WOULD UNDULY INTERFERE WITH CONTRACT NEEDS, AS PROVIDED IN SECTION 15-181 OF THE CODE.

IF THERE IS NO BID OF A LOCAL BUSINESS THAT MEETS THESE CRITERIA, THE CITY WILL AWARD THE PROCUREMENT TO THE LOWEST RESPONSIBLE BIDDER

**Award of Procurement that may be More or Less than \$100,000 for Purchase of Non-Professional Services, Including Construction Services:**

THE CITY WILL AWARD THIS PROCUREMENT TO A "LOCAL BUSINESS," AS THAT TERM IS DEFINED IN SECTION 15-176 OF THE CITY OF HOUSTON CODE OF ORDINANCES ("THE CODE")

- IF THE BID OF THE LOCAL BUSINESS IS LESS THAN \$100,000 AND IS THE LOWEST RESPONSIBLE BID OR IS WITHIN 5% OF THE LOWEST BID RECEIVED, OR
- IF THE BID OF THE LOCAL BUSINESS IS MORE THAN \$100,000 AND IS THE LOWEST RESPONSIBLE BID OR IS WITHIN 3% OF THE LOWEST BID RECEIVED, AND
- UNLESS THE USER DEPARTMENT DETERMINES THAT SUCH AN AWARD WOULD UNDULY INTERFERE WITH CONTRACT NEEDS, AS PROVIDED IN SECTION 15-181 OF THE CODE.

IF THERE IS NO BID OF A LOCAL BUSINESS THAT MEETS THESE CRITERIA, THE CITY WILL AWARD THE PROCUREMENT TO THE LOWEST RESPONSIBLE BIDDER

**11.0 SELECTION PROCESS:**

11.1 The award of this Contract(s) will be made to the bidder (s) offering the best value to the City. The City may make investigations, as it deems necessary, to determine the capabilities of the bidder(s) to supply the required goods and/or services. The bidder(s) shall furnish to the City such data as the City may request for this purpose. The City reserves the right to reject any bid if the evidence submitted by or the investigation of the bidder(s) fails to satisfy the City or the bidder(s) is deemed unqualified to provide the services contemplated. Each bidder will be evaluated on the basis of the following evaluation criteria that are listed in order of importance below:

11.1.1	Experience/Expertise	20%
11.1.2	Past Performance	5%
11.1.3	Service and Support	20%
11.1.4	Quality and Workmanship	20%
11.1.5	Methodology	15%
11.1.6	Cost	20%
11.1.7	M/WBE Compliance	Pass/Fail
11.1.8	Financial Capability	Pass/Fail

(\*) Hire Houston First Preference Points (Local Business = three (3) extra percentage points and Non-City and Non-Local Business will receive zero (0) extra percentage points).

11.2 An evaluation committee shall evaluate Bidder's submissions in accordance with the evaluation criteria listed in Item 1.1 above. Upon completion of the evaluation, the committee may develop a short list of bidder(s) meeting the technical competence requirements. The shortlisted bidder(s) may be scheduled for a structured oral presentation, demonstration, interview and negotiations. Following these City-to-bidder(s)' meetings, the evaluation committee will summarize their findings and recalculate their scores, if needed. However, the evaluation committee reserves the right to issue letter(s) of clarification when deemed necessary to any or all Bidder(s). The oral presentations, demonstrations and/or interviews may be recorded and/or videotaped.

11.3 The City reserves the right to request that Bidder(s) provide a final presentation handout of its Submission at their scheduled meeting. No Bidder may attend presentations of any other Bidder. If necessary, Bidders may be scheduled for more than one presentation, demonstration, or interview.

**12.0 SUBMITTAL REQUIREMENTS:**

To simplify the review process, the Respondent(s) must provide the responses to the items set forth below and include this information as requested in their bid packet to allow for the evaluation committee to conduct a thorough assessment of the Respondent(s) experience and capabilities. Moreover, Respondent(s) are encouraged to include additional relevant and supporting information to demonstrate their qualifications.

**13.0 EXPERIENCE/EXPERTISE: (20 Points)**

13.1 Experience/Expertise will be evaluated on the summary statement that shall include the below requested information:

13.1.1 Degree of quality on written business summary describing the Offerors background information, principal business office location, history, resources, and/or track record. Please limit this to four (4) pages.

- 13.1.2 Detailed experience, expertise, and qualifications in the maintenance, repair, and preventative maintenance services of Heating, Ventilation, and Air Conditioning (HVAC) equipment that are similar/comparable in size, type, scope, magnitude, and complexity of that described in this solicitation.
- 13.1.3 Provide an organizational chart of the proposed team or staff for project.
- 13.1.4 A list of key resources working for the Contractor and any achievements that the offeror has made over its total operating period.
- 13.1.5 Experience with any local/state/federal regulatory authorities.
- 13.1.6 Strength of firm's management, staffing and support staff, and to the level of thoroughness and detail provided in the organizational chart showing the chain of command of all proposed key personnel, their functions, and their responsibilities when working on this project.
- 13.1.7 Safety record for the past five (5) years.
- 13.1.8 Provide resumes of key personnel who will be responsible for the delivery of services for project.
- 13.1.9 Number and quality of key personnel certifications and/or licenses submitted.
- 13.1.10 Level of Contractor's Questionnaire data submitted with accurate contact information of references. Accuracy based on references containing: a) current contact names; b) current e-mail addresses; c) current phone number; and d) the current physical address of firms.

**14.0 PAST PERFORMANCE: (5 Points)**

- 14.1 Respondent shall demonstrate they have performed services similar in size and scope to this project. Respondent shall submit as references a list of previously executed contracts for maintenance, repair, and preventative maintenance services of heating, ventilation equipment (minimum of one (1) and maximum of three (3) contracts) similar in scope and size along with documented proof of executed contract(s).

**15.0 SERVICE AND SUPPORT: (20 Points)**

- 15.1 Provide a list of staff/technicians and their qualifications and experience in relation to the heating, ventilation, and air conditioning that are required to be inspected, tested, maintained and repaired; evidence that Contractors technicians possess the skills/licenses and the training to perform the required services.
- 15.2 Respondent shall provide resumes of key personnel whom will be responsible for the delivery of contract services. Include copies of key personnel certifications and/or licenses associated with inspection, preventative maintenance, and repair services of heating, ventilation, and air conditioning equipment/units. Respondent's project team must include at least (one) 1 senior technical, with a minimum of five (5) years' experience in the inspection, preventative maintenance, and repair services of heating, ventilation, and air conditioning equipment/units types and sizes included in this solicitation.
- 15.3 Respondent shall submit sufficient information to demonstrate their experience on maintenance, repair, and testing of heating, ventilation, and air conditioning equipment/units or closely related applications:
- 15.4 A list of all sub-contractors and suppliers used in the past three years for maintenance, repair, and testing of heating, ventilation, and air conditioning equipment/units.

**16.0 QUALITY AND WORKMANSHIP: (20 Points):**

- 16.1 The respondent must be able to demonstrate upon request that it has satisfactorily performed services similar to the services specified herein. The respondent shall provide records of warranty and repair services upon request by City. The City of Houston shall be the sole judge as to whether the services performed are similar to the scope of services contained herein and whether the bidder is capable of performing such services.

**17.0 METHODOLOGY: (15 Points)**

17.1 Provide the process that clearly defines the method of approach that will be utilized in the successful achievement of the BVB's intended scope of work, including a work plan and time line to meet the requirements.

**18.0 COST: (20 Points):**

18.1 The City of Houston will evaluate bids submitted, to determine whether the proposed costs are considered fair and reasonable. Any proposed costs determined to be unreasonably high or unbalanced may result in the Respondent(s) being ineligible for award.

**19.0 FINANCIAL CAPABILITY (Pass or Fail):**

19.1 If Bidder is an entity that is required to prepare audited financial statements, Bidder shall submit an annual report that includes:

- 19.1.1 Last two years of audited accrual-basis financial statements, including an income statement, cash flow statement, and balance sheet;
- 19.1.2 If applicable, last two years of consolidated statements for any holding companies or affiliates;
- 19.1.3 An audited or un-audited accrual-basis financial statement of the most recent quarter of operation; and
- 19.1.4 A full disclosure of any events, liabilities, or contingent liabilities that could affect Bidder's financial ability to perform this contract.

19.2 If Bidder is a privately-owned entity or sole proprietorship for which audited financial statements are not required, Bidder shall submit an annual report that includes:

- 19.2.1 Last two years of un-audited accrual-basis financial statements, including an income statement, cash flow statement, and balance sheet;
- 19.2.2 An audited or un-audited accrual-basis financial statement of the most recent quarter of operation; and
- 19.2.3 A full disclosure of any events, liabilities, or contingent liabilities that could affect Bidder's financial ability to perform this contract;

OR

19.3 Other financial information sufficient for the City, in its sole judgement, to determine if Bidder is financially solvent or adequately capitalized.

**20.0 M/WBE PARTICIPATION (Pass or Fail)**

20.1 Contractor shall comply with the City's Minority and Women Small Business Enterprise ("MWSBE") programs as set out in Chapter 15, Article V of the City of Houston Code of Ordinances. Contractor shall make good faith efforts to award subcontracts or supply agreements in at least the value stated in this Agreement to MWSBE's. Contractors are encouraged to provide meaningful participation to each subcontractor to the fullest extent of its capacity. Contractor acknowledges that it has reviewed the requirements for good faith efforts on file with the City's Office of Business Opportunity (OBO) and shall comply with them.

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**SCOPE OF WORK/SPECIFICATIONS  
FOR THE GENERAL SERVICES DEPARTMENT  
GENERAL SPECIFICATIONS  
PART 1**

**1.0 OVERVIEW:**

- 1.1 The General Services Department, Property Management Division is responsible for the maintenance and repairs of all City of Houston Fire, Police, Health, Library, ARA and Fleet Management facilities. Also included are facilities at Municipal Courts, Parks, and HITS. The purpose of this request is to provide Heating, Ventilation and Air Conditioning (HVAC) services at City facilities.
- 1.2 This contract is to provide Heating, Ventilation and Air Conditioning (HVAC) and Building Automation Systems (BAS) services to various City facilities for various departments throughout the City of Houston. The types of services required with this contract are repairs, preventative maintenance, full service, water treatment, other work services, replacement and installation services. The Contractor awarded this contract shall have the experience and technical ability to accomplish any HVAC services needed by the City

**2.0 SCOPE OF SERVICES**

- 2.1 The Contractor shall furnish all personnel, management, supervision, labor, replacement parts, equipment, tools, materials, supplies, testing equipment, chemicals, associated components, expendable items, transportation, facilities, permits and training required for Heating, Ventilation and Air-Conditioning (HVAC) Services, Building Automation Services (BAS), water treatment and related equipment and components in a safe manner and in accordance with the most recent and effective HVAC procedures. The Contractor shall comply with all rules, regulations, and laws established by any state or federal regulatory or legislative body having jurisdiction over the facilities owned/managed by the city and covered by/under the Agreement at the locations listed in Exhibit BB, Location List. Contractor shall coordinate the performance of Heating, Ventilation and Air-Conditioning (HVAC) services with the Director or its designated representative. Contractor shall also maintain and repair all HVAC equipment and systems in accordance with the highest prevailing standards in the industry based on original condition, age, and recommendations of the OEM throughout the resulting contract performance period.
- 2.2 The Contractor shall provide maintenance and/or repair services on the following types of HVAC equipment:
- 2.2.1 Chillers, water source heat pumps, air handlers, boilers, gas furnaces, electric heat strips, unit heaters, air cooled systems, water cooled systems, fan coils, ventilation fans, exhaust fans and all equipment at locations listed in Exhibit BB, but not specifically listed individually.
- 2.2.2 All equipment shall be identified by manufacturer, model number, air conditioning heating and refrigeration institute AHRI certificate and serial number and/or by unit number.
- 2.3 All Services aforementioned shall be provided 24-hours per day, 365 days per year on an as-needed basis.
- 2.4 The Contractor shall perform full maintenance, preventative maintenance, repair services, inspections, water treatment, and installation of systems on general HVAC equipment, including boilers associated with the HVAC system.
- 2.5 Contractor shall provide monthly, quarterly and annual maintenance services as specified in Exhibit BB and/or repairs approved by the Director or its designated representative in order to keep the

equipment in proper operating condition. Additionally, the Contractor shall provide full service maintenance on critical HVAC equipment specified in Exhibit BB.

- 2.6 The Contractor shall maintain and repair all HVAC equipment and systems in accordance with the highest standards in the industry based on original condition, age and as defined by the Building Superintendent and department maintenance standards throughout the Contract performance period.
- 2.7 The Contractor shall perform inspections, full maintenance services, scheduled preventative maintenance and repairs as necessary on HVAC equipment specified in Exhibit BB, parts 1 and 4.
- 2.8 Contractor shall perform inspections, preventative maintenance and repair services on the Building Automated Systems (BAS) specified in Exhibit BB.
- 2.9 Contractor shall perform inspections, preventative maintenance and repair services on the Building Automated Systems (BAS) specified in Exhibit BB, Equipment List.
- 2.10 All work shall conform to all applicable sections of currently adopted additions of the following codes, standards and specifications:
  - 2.10.1 International Building Code (IBC)
  - 2.10.2 Safety and Health Regulations for Construction
  - 2.10.3 Occupational Safety and Health Standards (OSHA)
  - 2.10.4 National Fire Protection Association (NFPA)
  - 2.10.5 Life Safety Code (Edition 2015)
  - 2.10.6 American Gas Association (AGA)
  - 2.10.7 Underwriters Laboratories, Inc. (UL)
  - 2.10.8 Factory Mutual Engineering Corporation or other recognized National Laboratories Environmental Protection Agency (EPA)
  - 2.10.9 Sheet Metal and Air Conditioning Contractors' National Association, Inc. (SMACNA)
  - 2.10.10 American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE)
- 2.11 The Contractor and/or Sub-Contractor hourly rates shall not begin until Contractor arrives at job site.
- 2.12 Travel time, food, fuel or lodging is not reimbursable expenses per this resulting contract.

### **3.0 REPAIR SERVICES:**

- 3.1 HVAC repair services shall be available upon request and written authorization from the requesting Facility Representative. An estimate shall be provided to the General Services Superintendent/Designee with all associated cost and information for such repair. No repairs shall be made without the prior approval of the General Services Superintendent/Designee.
- 3.2 A General Services Department (GSD) requirement - A work order number shall be required for all repair services conducted for GSD. The process for obtaining such work order is outline in Section 11.0 below.
- 3.3 All repair services shall be invoiced at the appropriate Rates as outlined in Contract Fee Schedule (Exhibit F).
- 3.4 The General Services Department is not obligated to the contractor for any repairs to equipment; the Department has the option to solicit pricing from other contractors for the best value.

#### **4.0 PREVENTATIVE MAINTENANCE:**

- 4.1 Preventative Maintenance (PM) services shall be performed without unnecessary interruption or delays during scheduled service period. The service interval shall be determined by each Department's Facility Coordinator as outlined in Exhibit B or by OEM requirements.
- 4.2 The PM Program shall be instituted within forty-five (45) days of the issuance of the Notice to Proceed. If a scheduled PM Program is in place, then the Contractor shall follow that PM schedule provided by the Facility Coordinator.
- 4.3 The Contractor shall perform regularly scheduled maintenance on HVAC equipment and systems as specified in Exhibit BB.
- 4.4 All maintenance shall be performed in compliance with the OEM specifications and recommendations and other provisions specified herein.

#### **5.0 FULL MAINTENANCE SERVICE:**

- 5.1 As defined by the GSD, Full Maintenance Service (FMS) includes all preventative maintenance, repairs and inspections to maintain to the specified equipment condition as per the OEM or First Class Condition.
- 5.2 Contractor is to provide a report to the Facility Manager each time a FMS is performed. The report shall include the current condition of the equipment, services performed and materials used during the FMS.
- 5.3 The FMS on the equipment requires a one (1) hour response time for breakdowns 24 hours a day, 365 days a year.
- 5.4 A list of critical equipment, locations and maintenance schedule are specified in **Part 3 (Full Maintenance Specifications)**.

#### **6.0 BUILDING AUTOMATION SYSTEMS:**

- 6.1 The General Services Department currently utilizes several different building automation system (BAS) as noted below.
  - 6.1.1 Metasys, version 7.0
  - 6.1.2 Continuum version 1.73
  - 6.1.3 Teletrol H472-01-00
  - 6.1.4 Traine Trace Summit
  - 6.1.5 CCN Web
  - 6.1.6 Traine Explorer
  - 6.1.7 Summit Tracer V16-SP6, Windows Operating System Microsoft Windows XP, Version 2002
  - 6.1.8 Siemens Apogee Insight, Version 3.11
  - 6.1.9 Access Specialities International Version 3.6.5

#### **7.0 OTHER SERVICE REQUESTS:**

- 7.1 Within the general scope of this Agreement, Other Work/Services may be required to meet desired conditions not covered in the Basic Services. All requests for Other Work Services shall be in writing in the form of Other Service Request (OSR) provided by the Director and/or designee. The only exception is an Emergency Service Request.
- 7.2 Emergency Services Request is a verbal request followed immediately in writing.

### 7.3 Performing Other Work Services

- 7.3.1 Other Work/Services shall be performed in accordance with all provisions of this Agreement and any special provisions issued with the Other Service/Request (OSR).
- 7.3.2 Contractor shall request an Emergency Authorization when deemed an emergency exists that is not covered under Basic Services. GSD may issue an Emergency Authorization at which time the Contractor may start immediate repairs. Contractor must make a good faith estimate of the "Not to Exceed" price of total repairs to be done under the Emergency Authorization. If for some reason repairs cannot be done, Contractor will notify GSD with a full explanation. Emergency authorization is not an OSR. Once the Emergency Authorization is issued, Contractor and GSD shall then proceed with completing the OSR process for approval and Service Release Order number.
- 7.3.3 Prior to issuing an OSR, the Director and/or designee shall first issue a written notice electronically to the Contractor detailing the specific OSR to be performed the Contractor.
- 7.3.4 In response to any such written notice, the Contractor shall provide the Director and/or designee with a written proposal within three (3) business days of receipt of OSR. Contractor shall include a description of the services to be performed, applicable labor rates, estimated labor hours, performance schedule, total estimated cost, and other requirements set forth in the written notice to the Contractor.
- 7.3.5 Contractor shall furnish all materials, labor, tools, equipment, transportation, and incidentals for accomplishing the described services or as otherwise specified by Director and/or designee. Director and/or designee shall not approve an OSR without a specified completion date. Contractor shall complete all such Other Work/Services within the time specified in the OSR. Contractor can submit an official letter request in writing providing explanation for an extension to the completion date. However, Director and/or designee may or may not allow the extension. Director's and/or designee decision is final.
- 7.3.6 Upon receipt of the Contractor's Proposal, the Director and/or designee has the option to reject the Contractor's Proposal, require resubmission with revised or additional information or issue an OSR. Should the Director and/or designee reject the Contractor's Proposal and require resubmission, the Contractor shall resubmit a modified Proposal within three (3) business days of the rejection.
- 7.3.7 Upon approval by Director and/or designee of the modified proposal, an OSR shall be issued. Contractor shall commence work as stated in the OSR. Contractor shall diligently work to completion in accordance with the terms and conditions of this Agreement and the approved OSR.
- 7.3.8 Contractor's labor cost shall not exceed the rate stated in the Price/Fee schedule. Contractor's labor cost stated in the Price/Fee Schedule only applies to Contractor employees who are "not" performing work in conjunction with their regular duties. Labor is inclusive of supervision, management, transportation, tools, equipment, parts mileage/call-out fees, and expendables.
- 7.3.9 Prices for equipment, parts, supplies, and sub-contracted works, which may be required for authorized Other/Work Services, shall be the Contractor's actual cost plus percent mark-up proposed on the fee schedule. Copies of invoices from the Contractor's suppliers for these items must be submitted with Contractor's invoices at the time of submittal to the City for payment.
- 7.3.9.1 The mark-up percentages stated shall not increase during the term of the agreement. The quantity of equipment, parts, and supplies shall depend on the needs of the City.
- 7.3.9.2 Over \$3,000.00, Contractor shall obtain three (3) itemized bids/estimates within three (3) business days from separate/different vendors/suppliers, for the required equipment, parts, supplies, and subcontracted works. Contractor shall submit the bids/estimates to Director and/or designee and obtain written approval from Director and/or designee before proceeding with the work. Contractor shall be compensated at "Cost" plus percent mark-up proposed in the Price/Fee Schedule.

- 7.3.9.3 Under \$3,000.00, Contractor shall obtain one (1) itemized bid/estimate within three (3) business days, for the required equipment, parts, supplies, and subcontracted works. Contractor shall submit the bid/estimate to the Director and/or designee and obtain written approval from the Director and/or designee before proceeding with the Work. Contractor shall be compensated at "Cost" plus up to percent mark-up proposed on the Price/Fee Schedule.
- 7.3.9.4 When Other Work/Services have been completed, a copy of the approved OSR must accompany the monthly invoice.
- 7.3.9.5 While performing work on any OSR, if hidden damage or additional cost is discovered, Contractor shall notify the Director and/or designee immediately. After determining the extent of the hidden damage, a supplemental OSR shall be submitted.
- 7.3.9.6 Contractor shall submit to Director and/or designee, copies of original purchase orders and invoices evidencing Contractor's acquisition costs.
- 7.3.9.7 When using a Sub-Contractor(s) for Other Work Services, the Contractor shall assume full responsibility for all work performed, escorting of non-badge personnel and compliance to all applicable airport regulations. Contractor shall warranty all Sub-Contractor work for one year.
- 13.3.9.8 Any OSR that exceeds three thousand dollars in total, including parts and materials, excluding labor and mark-up shall have three competitive bids. The exception to this is an OSR done using after hours labor. Three bid requirement shall only apply if materials exceed three thousand dollars. Emergency Authorization is not subject to three bid requirements.
- 7.3.9.9 After hours labor and freight charges are not subject to mark-up.
- 7.3.9.10 If it is determined the Scope of Work should be covered under Basic Services, any amount paid to the Contractor under Other Work/Services Request shall be reimbursed to the City by the Contractor. The City does not waive any of its rights and remedies whether by statute, at law, in equity or under this Contract.
- 7.3.9.11 If Other Work/Services are performed by the on-site crew in conjunction with their regular duties, the Contractor shall not receive additional compensation for their labor.

**8.0 LABOR RATES:**

- 8.1 Straight time shall be defined as Monday through Friday, business hours of 8:00 a.m. to 5:00 p.m.
- 8.2 Overtime shall be defined as any time after regular business hours, holidays, and weekends.
- 8.3 Regular Response Time
- 8.3.1 The Contractor shall respond within three (3) hours of the time a call or a "Work Order" is received.
- 8.4 Emergency Response Time
- 8.4.1 The Contractor shall respond within one (1) hour of the time a call or a Work Order is received.
- 8.4.2 Rates for time accrued over an hour shall be charged in fifteen (15) minute increments, e.g., 2.5 hours at \$35.00/hour will be paid \$87.50 for labor.
- 8.5 All rates shall be per the contract Fee Schedule (Exhibit "F").

**9.0 SUITABILITY OF MATERIALS:**

- 9.1 All supplies, materials, repair or replacement parts, and equipment or tools used or furnished by the Contractor in the performance of the work specified herein shall be of the type, quality and size customarily used in the trade for such work. Any such items deemed unsuitable by the Facility Manager(s) shall be replaced by the Contractor at the Contractor's expense.
- 9.2 All repair or replacement parts shall be new from the original equipment manufacturer (OEM) or approved equals or better than the OEM parts. Parts must meet or exceed the original equipment manufacturers minimum requirements for particular pieces of equipment (e.g. computer room air conditioner equipment shall require comparable replacement parts compatible with the caliber of equipment utilized). Parts remanufactured to original manufacturer's specifications may be accepted if original OEM or after-market parts cannot be obtained.
- 9.3 The Contractor shall obtain and maintain a copy of the Material Safety Data Sheets (MSDS) for all hazardous materials used. MSDS shall be posted at each City facility.

**10.0 PARTS MARKUP:**

- 10.1 Markup on any replacement parts/materials covered under this agreement shall be limited to 10% above Contractor's actual cost.

**11.0 CALL-OUT AND MILEAGE CHARGES:**

- 11.1 Contractor shall not charge the City for any Call-Out and/or Mileage Charges. Contractor shall only charge the City at the rates defined within the contract Fee Schedule (Exhibit F).

**12.0 SPECIFICATIONS:**

- 12.1 The specifications set forth herein cover the minimum requirements for HVAC maintenance services for equipment specified in Exhibit BB. The descriptions in these specifications shall be considered as informative to the Contractor as to what type of maintenance and inspections that is required. The omission of any specification or description concerning any equipment or service shall be regarded as meaning that only the best commercial practice shall prevail. All interpretation of these specifications shall be made upon the basis of this statement.

**13.0 COMPUTER MAINTENANCE MANAGEMENT SYSTEM (CMMS) COMPLIANCE:**

- 13.1 The City of Houston General Service Department (GSD) utilizes a Computer Maintenance Management System (CMMS) to monitor and track all work progress, to better manage finances and to create reporting documents for senior leadership. The City captures this important information through the use of work orders. The current CMMS which is known as the Sprocket Work Order System (SWOS), is a development of Johnson Controls Inc. (JCI); who has the complete knowledge of its operational parameters.
- 13.2 GSD may choose at any time to implement a program requiring the selected contractor to utilize the Sprocket Work Order System (SWOS) to execute all work performed for the City of Houston General Services Department (GSD).
- 13.3 All work shall be transmitted from the GSD to the contractor through the CMMS system and the Contractor shall monitor, execute and field close work orders with all pertinent information including initial response date (not applicable to PM work orders), field completion date, total job cost billed to the City (includes labor and materials used to complete a specific work order that is above and beyond the scope included in fixed contract with City), invoice number, and a brief description of

the work performed.

- 13.4 GSD may provide additional parameters for report formatting at any time.
- 13.5 The Contractor shall bill all work for payment using standard billing practices described in Section 29.0.
- 13.6 GSD internal expenditure control policy is as follows:
  - 13.6.1 Work orders with a cost estimate less than \$3,000.00, and approved by a GSD Representative can be executed against Service Release Order (SRO number) upon approval.
  - 13.6.2 Jobs exceeding \$3,000.00 shall require a written estimate and the issuing of a Purchase Order (PO) number before the work order can be executed by the contractor.
  - 13.6.3 Emergency Purchase Orders (EPO) can be executed upon verbal approval by a GSD Representative regardless of cost.
- 13.7 Work orders shall not serve as invoicing documents for the contractor. Payments shall only be made as described in Section 27.
- 13.8 Work orders are to be field closed electronically upon completion to maximize accuracy to enable GSD managers to provide real-time reporting to upper management.
- 13.9 GSD shall provide Contractor with the following:
  - 13.9.1 One (1) Sprocket user license.
  - 13.9.2 Initial Sprocket configuration setup.
  - 13.9.3 Three (3) hours of basic SWOS training by GSD employees at no cost to the Contractor.
- 13.10 Additional user licenses are optional, but cost for these must be purchased by the Contractor by contacting JCI as outlined in this section.
- 14.0 OTHER CONTRACTS:**
  - 14.1 The City reserves the right to enter into other contracts in connection with HVAC services for the General Services Department as well as other City departments as may be deemed necessary. The Contractor shall be informed of contracts that may interfere with its work. The Contractor, in carrying out the performance of the Contract, shall avoid all unreasonable interference with the work under these contracts, and shall where required, make adjustments or changes in operations to facilitate or permit the other Contractors to accomplish their work.
  - 14.2 The Directors or Contract Administrators of the other City Departments shall provide the Contractor with contact information for the persons who shall administer this contract on behalf of the various other City Departments.
  - 14.3 The General Services Department reserves the right to monitor this contract for compliance to ensure legal obligations are fulfilled and acceptable levels of service are provided.
  - 14.4 Monitoring may take the form of, but not necessarily be limited to:
    - 14.4.1 Inspection, testing, and/or sampling of goods delivered or to be delivered
    - 14.4.2 Review of deliveries received for accuracy and timeliness
    - 14.4.3 Review of Supplier's invoices for accuracy

- 14.4.4 Review of certifications and/or licenses
- 14.4.5 Site visits.

**15.0 PUBLIC RELATIONS:**

- 15.1 The Contractor agrees that neither it nor its agents, subcontractors or employees shall issue or make any statements on behalf of the City with respect to any incident occurring at the Airport, or at any City facility, except when requested to do so by the Director of the department user.

**16.0 WORK VERIFICATION:**

- 16.1 When scheduled for work, the Contractor's personnel shall check in at the offices of the Facility Managers. The Contractor shall present daily work orders or schedule. At that time, additional instructions, if any, shall be provided by the Facility Managers. When the work is completed, or upon cessation of work, the Contractor shall return to the Facility Manager and complete the City Service Log describing services and procedures utilized for the schedule work with appropriate follow-up actions if needed. The Facility Manager shall verify and approve the City Service Log (CSL) and the Contractor's work order. A copy of the signed log and work order, with approval signature and employee ID number, shall be submitted with the Contractor's invoice for payment. Invoices submitted without the appropriate City log and work order approval will not be processed for payment until proper documentation is received. Contractor shall send separate invoices to the individual Facility Managers as requested by Department staff.

**17.0 PERSONNEL QUALIFICATIONS:**

- 17.1 The Contractor shall provide only qualified personnel with experience in the assigned tasks. The Contractor is responsible for ensuring that certified trained personnel and necessary materials, tools, equipment and supplies are available to meet the HVAC services requirements of this Agreement. The Contractor may change personnel only with equally certified personnel and with Director's approval. Contractor shall furnish documentation that includes assigned personnel's qualifications and certifications. The Director shall have the authority to instruct the Contractor to remove unsatisfactory personnel from performing work on this contract for just cause. The Director's decision shall be final in all cases.

**18.0 CONTRACTOR PROJECT MANAGER:**

- 18.1 The Contractor shall designate in writing to the user department Director or designee, a Project Manager to be approved by the Department prior to start of Work under the proposed Contract. The Contractor's Project Manager shall have full authority to represent the Contractor in making decisions and in the execution of the services to be performed under the Agreement. The Contractor shall provide the Director with the business and after hours phone number of the Project Manager. The Contractor shall provide a toll free telephone number if the Project Manager resides outside of the 713, 281,832, and 346 Area Codes. The Contractor shall provide a dedicated and qualified Project Manager who is skilled and experienced in HVAC services identified in the Agreement, who shall serve as the main point of contact for the Contractor. The Project Manager shall be available to be on-site at all times during the performance of HVAC services and to provide the level of supervision necessary to ensure full compliance with the Contract specifications.

**19.0 APPEARANCE OF CONTRACTOR'S PERSONNEL:**

- 19.1 The Contractor's personnel shall present a clean and neat appearance. The Contractor's personnel shall wear a Contractor furnished photo badge, and uniform with Contractor's company name and employee's name clearly displayed (Refer to section 20.0) for GSD badging requirements).

**20.0 CONTRACTOR'S FINANCIAL OBLIGATION:**

20.1 The Contractor shall make timely payments to all persons supplying labor and materials or furnishing it with any equipment in the execution of the proposed Contract.

**21.0 TEXAS DRIVER'S LICENSE:**

21.1 The Contractor's employees performing work for the City must possess a valid Texas driver's license for the type of vehicle or equipment operated. Contractor shall ensure employees meet this requirement.

**22.0 SECURITY REQUIREMENTS FOR THE GENERAL SERVICES DEPARTMENT FACILITIES:**

22.1 The General Services Department requires that all contractor personnel pass the background check for badging. Upon the completion of the background check, all contractors' employees and sub-contractors shall be required to obtain a City of Houston Contractor's Badge from the General Services Department's Security Office located at 611 Walker Street, Houston, TX. Time and scheduled hours shall be provided.

**23.0 SECURITY REQUIREMENTS FOR HOUSTON POLICE DEPARTMENT FACILITIES:**

23.1 The Houston Police Department requires contractors to comply with the Criminal Justice Information System (CJIS) Contractor Certification. For a full description of Criminal Justice Information System (CJIS) requirements, please go to [www.houstontx.gov/police/cjis/hpdvendorcertification.htm](http://www.houstontx.gov/police/cjis/hpdvendorcertification.htm). For questions please contact the Houston Police Department CJIS Compliance Unit at (713) 308-9080 or by email: [CCU@Houstonpolice.org](mailto:CCU@Houstonpolice.org).

**24.0 CRIMINAL JUSTICE INFORMATION SYSTEMS (CJIS) COMPLIANCE (Applicable to Houston Police Department (HPD) Occupied Facilities:**

24.1 The Houston Police Department recognizes that by allowing physical or logical (electronic) access to HPD facilities or network resources, people may gain access to information or systems they are statutorily prohibited from accessing. To comply with state and federal regulations, the Houston Police Department is required to document and investigate access requests to be sure access is necessary and permitted. Bidders/Respondents, therefore, agree to review the Criminal Justice Information Systems (CJIS) process and related documents located at <http://www.houstontx.gov/police/cjis/hpdvendorcertification.htm> and shall comply with the terms and requirements therein.

**25.0 SECURITY REQUIREMENTS FOR NON-HOUSTON POLICE DEPARTMENT FACILITIES:**

25.1 All personnel shall be subject to a security background check and a condition of assignment to any City of Houston facility. The results of the background check shall be submitted to the facility Supervisor in charge.

25.2 All cost associated with the background check shall be the responsibility of the Contractor.

25.3 The Facility Supervisor in charge shall have the authority to instruct the Contractor to remove undesirable personnel for just cause.

25.4 The decision by the Director and or the designee shall be the final in all cases involving removal of contract personnel from performing work herein specified.

25.5 The Contractor shall comply with all building security measures as they pertain to each facility.

25.6 The Contractor shall be responsible for training of staff and sub-contractors in the security measures pertaining to these facilities.

**26.0 SCHEDULING:**

26.1 Contractor shall ensure that certified trained personnel and all necessary materials, tools, equipment and supplies are available to meet HVAC services requirements of the Agreement. All Work shall be performed in accordance with the specific tasks and performance schedules detailed in Section 2.0 in the proposed Agreement. The Contractor shall prepare and submit a written schedule to the Director or designee detailing the responsibilities of each person, within one (1) week after receiving Notice to Proceed. The schedule shall be a 12- month schedule in advance giving the scheduled dates for all non-daily operations. The Contractor shall notify the Director immediately in writing of any proposed deviations from the schedule along with the schedule recovery dates. The Contractor shall not deviate from the schedule until it receives the Director's written approval.

**27.0 TOOLS, MATERIALS, SUPPLIES, AND EQUIPMENT:**

27.1 The Contractor shall furnish all HVAC materials, supplies, and equipment necessary to perform HVAC services at no additional cost to the City. All supplies shall be of the quality necessary to fulfill the intended purpose of the product. The Contractor shall provide and maintain tools, machines, and equipment necessary to perform the work as specified. All equipment must be maintained in a first-class working condition satisfactory to the Director. The Contractor shall use all tools, materials, supplies and equipment in accordance with the manufacturer's instructions.

27.2 The City shall not be held liable for any loss, breakage, or damage which may result to tools, equipment, materials, or supplies which the Contractor may be using in the areas serviced.

**28.0 TRANSPORTATION AND PARKING:**

28.1 The Contractor shall furnish all necessary transportation required to perform the Work. The Contractor is granted the right to use designated vendor parking areas while performing the Work, where available. The Contractor's vehicle(s) shall be clearly marked with the Contractor's name on each side of the vehicle. Magnetic signs are acceptable for this purpose. Vehicles used must also be identified in accordance with State and local regulations. All vehicles used by the Contractor's personnel in their routine duties shall be registered with the Director.

**29.0 INVOICING:**

29.1 The Contractor shall invoice the City and the City shall make payment in accordance with Section 16.0, Work Verification, of this proposed Agreement. Contractor invoices for those costs specified in the Contract Fee Schedule must include itemization justifying the amounts as invoiced. Separate invoices for each facility must be provided. The itemization shall be in accordance with the Contract Fee Schedule and shall include, but is not be limited to the following:

29.1.1 Each invoice (in duplicate) shall be delivered, mailed or emailed to the individual facility managers of each department. The Contractor is responsible to verify the departments correct mailing address.

29.1.2 Invoices must be submitted in duplicate with copies of the Contractor's daily work orders attached which have been approved by the Facility Manager or designee.

29.1.3 Invoices submitted for services performed as the result of Change Order shall require that copies of the applicable Change Order also be attached to the original and one (1) invoice copy.

29.1.4 Invoices submitted for services that are performed as the result of Other Work/Services must also include copies of Director's written request for the services and any additional supporting documentation required for the services provided.

29.1.5 Other information or details as may be requested or specified by the Director.

29.1.6 Each invoice must contain, in addition to the above, the five digit Systems Applications and Products (SAP) Contract Number and Service Release Order (SRO) number assigned by the City Controller's Office to the specified contract services; a complete description of the services provided (and complete contract name); and the Contractor's contact person for invoice irregularities.

29.1.7 **General Services Department (GSD):**

The Contractor shall submit along with their monthly invoice for each GSD managed facility documenting the number of HVAC services provided. The contractor shall mail all approved invoices to:

City of Houston  
General Services Department  
Accounts Payable  
gsdpayables@houstontx.gov

29.1.8 **Houston Parks and Recreation Department:** Parks and Recreation Department, 2999 S. Wayside, Gragg Building, Accounts Payable Division - Attn: Gina Singleton, Houston, TX 77023

29.1.9 **Houston Information Technology Services Department:** COH Information Technology Services, Finance Business Office, Accounts Payable, PO Box 3685, Houston, TX 77251-3685

29.1.10 **Solid Waste Management Department:** Solid Waste Management Department, Accounts Payable, PO Box 15621, Houston, TX 77251-1562 or swmaccountpayable@houstontx.gov

**30.0 CHARGES:**

30.1 Charges for services provided under the Contract shall be in accordance with the prices/rates shown in the Contract Fee Schedule and in such form as may be requested or specified by the Director.

30.2 Contractor shall accept the following types of payments

- a. Purchase Order
- b. SRO (Service Release Order)
- c. EPO (Emergency Purchase Order)
- d. P-Card

**31.0 INSPECTIONS:**

31.1 The Director shall have the right to conduct inspections on all equipment, materials, supplies and tools furnished, all records and logs, and all work performed under the Agreement without prior notice to the Contractor. Equipment, tools, materials, supplies, and services that do not conform to the specifications of this Contract may be rejected. It is the contractor's responsibility to maintain the equipment, materials and tools provided for all aspects of the services being provided hereunder, consistent with applicable State, Federal, environmental, safety and health codes, guidelines and regulations.

31.2 All work performed by the Contractor, which upon inspection by the Director, is found to be faulty, incomplete, or does not meet the specifications of this Agreement, shall be corrected by the Contractor. The whole expense of these corrections shall be at the expense of the Contractor.

The Director reserves the right to stop the work covered under this Agreement at any time it has deemed the Contractor is unable or incapable of performing the services satisfactorily. In the event of such stoppage, the Director shall have the right to arrange for the completion of the services in such manner as it deems advisable, and if costs of doing so exceeds the bid amount, the successful Contractor shall be liable to the City of Houston for any such costs on account thereof.

- 31.3 A written report of the results of the inspection and recommendations shall be forwarded to the Contractor and shall require the Contractor to take immediate action. Contractor shall correct the deficiency and respond in writing stipulating the corrective action(s) taken within 10 days unless otherwise authorized by the Director. The Director shall determine responsibility for any deficiencies identified through an inspection.

**32.0 DISPUTES:**

- 32.1 In all cases of misunderstanding and disputes, verbal arrangement shall not be considered binding and Contractor shall produce written documentation in support of its contentions. The decision of the Director shall be final.

**33.0 SUBCONTRACTORS:**

- 33.1 The Contractor may use only subcontractors approved by the Director in connection with the performance of work under the Agreement, and the Contractor shall be completely responsible to the City for such subcontractors and their acts and omissions to the same extent as if there were no subcontractors.

**34.0 DAMAGE TO CITY PROPERTY:**

- 34.1 The Contractor shall be responsible for the repair and cost thereof, of all damages to City property caused by carelessness or neglect on the part of the Contractor, its agents or employees.

**35.0 SAFETY:**

- 35.1 The Contractor shall not require any person employed in the performance of the Agreement to work in surroundings or under working conditions which are unsanitary, hazardous, or dangerous to their health or safety, or contrary to any provision of the Occupational Health and Safety Administration Standards for the products being used (OSHA).
- 35.2 The Contractor shall be completely familiar with, and shall enforce all City, State of Texas and Federal OSHA regulations and requirements as applicable for services performed under the Agreement, including but not limited to the following:
- 35.2.1 The Contractor's personnel shall wear applicable personal protection equipment at all times.
- 35.2.2 The Contractor's personnel operating equipment and/or handling materials shall be fully trained in the safe operation of the equipment or materials.
- 35.2.3 The Contractor's personnel shall follow and apply safety practices prevailing in their industry.
- 35.3 The Contractor shall develop, implement and maintain an on-going safety program concerned with equipment, maintenance work, and related procedures. Safety warnings shall be posted on equipment as necessary to ensure safe operations. Equipment shall never be installed, tested or operated in an unsafe condition.

35.4 The Contractor shall be responsible for the proper operation and maintenance of all safety equipment associated with HVAC services.

**36.0 INCREASE OR DECREASE OF WORK:**

36.1 The City has the right to increase or decrease the number and/or frequency of Basic Services; the costs from the Contract Fee and Costs Schedule shall be used to determine the increase or decrease in cost. If costs are not provided, costs shall be as mutually agreed upon between City and Contractor.

**37.0 PRE-PERFORMANCE CONFERENCE:**

37.1 Subsequent to contract approval/execution, the Contractor(s) shall be required to attend a performance conformance. The Strategic Procurement Division or the primary user department shall host the pre-performance conference. The purpose of the pre-performance conference is for the contractor to introduce his or her project manager to the City staff and for City staff to introduce the contract end-users, contract compliance and accounts payable representatives. Items to be addressed shall include, but are not limited to, the following:

37.1.1 Start-up and phase-in and performance schedule

37.1.2 Contract administration

37.1.3 Facilities utilization

37.1.4 Channels of communication

37.1.5 Procedures used to ensure Contract requirements are met to meet all the requirements of the Contract.

**38.0 ESTIMATED QUANTITIES NOT GUARANTEED:**

38.1 The estimated quantities specified herein are not a guarantee of actual quantities, as the City does not guarantee any particular quantity of services during the term of this Contract. The quantities may vary depending upon the actual needs of the Department. The quantities specified herein are good faith estimates of usage during the term of this Contract. Therefore, the City shall not be liable for any contractual agreements/obligations the Contractor enters into based on the City purchasing all the quantities specified herein.

**39.0 INTERLOCAL AGREEMENT:**

39.1 Under the same terms and conditions hereunder, the Contract may be expanded to other government entities through inter-local agreements between the City of Houston and the respective government entity that encompass all or part of the products/services provided under this contract. Separate contracts shall be drawn to reflect the needs of each participating entity.

**PREVENTATIVE MAINTENANCE SPECIFICATION  
FOR GSD AND VARIOUS DEPARTMENTS  
PART 2**

**OVERVIEW**

In PART 2 "**PREVENTATIVE MAINTENANCE**" (PM) Using the checklist in these "**EXHIBITS**" the Contractor shall perform Quarterly Preventative Maintenance and Inspections on the HVAC equipment and systems specified below. During the PM inspections, the Contractor shall record and report abnormal conditions and measurements, and review equipment logs with the on-site manager. Any abnormal conditions shall be reported immediately. The Check Lists within is a minimum requirement established as a guideline in performing PMs. The Contractor shall refer to the Manufacturers requirement for further details.

<b>EXHIBIT "A1"</b>	CHILLER-CENTRIFUGAL AND CENTRIVAC ROTARY SCREW CHILLERS
<b>EXHIBIT "A2"</b>	CHILLER-AIR COOLED RECIPROCATING
<b>EXHIBIT "A3"</b>	CHILLER-WATER COOLED RECIPROCATING
<b>EXHIBIT "A4"</b>	CHILLER-WATER COOLED SCREW
<b>EXHIBIT "A5"</b>	AIR HANDLER UNIT
<b>EXHIBIT "A6"</b>	BOILER GAS
<b>EXHIBIT "A7"</b>	BOILER ELECTRIC
<b>EXHIBIT "A8"</b>	COOLING TOWER
<b>EXHIBIT "A9"</b>	CONDENSING UNIT/WATER COOLED SCROOL
<b>EXHIBIT "A10"</b>	PACKAGE UNIT
<b>EXHIBIT "A11"</b>	SPLIT DX UNIT
<b>EXHIBIT "A12"</b>	ROOF TOP UNIT (RTU)
<b>EXHIBIT "A13"</b>	SPACE HEATERS
<b>EXHIBIT "A14"</b>	EXHAUST FANS
<b>EXHIBIT "A15"</b>	AIR COMPRESSORS
<b>EXHIBIT "A16"</b>	PUMPS
<b>EXHIBIT "A17"</b>	VARIABLE AIR VOLUME BOXES
<b>EXHIBIT "A18"</b>	HOUSTON INFORMATION TECHNOLOGY SERVICES DEPARTMENT PREVENTATIVE MAINTENANCE SERVICES.

## EXHIBIT "A-1"

### A1.0 CENTRIFUGAL AND CENTRIVAC ROTARY SCREW CHILLERS

#### A1.0 QUARTERLY PREVENTATIVE MAINTENANCE

##### Chiller/Water-Cooled Screw/Operation

- 1 \_\_\_\_\_ Check and adjust operating and safety controls as necessary.
- 2 \_\_\_\_\_ Check operation of motor and starter.
- 3 \_\_\_\_\_ Inspect chiller and make adjustments as required.
- 4 \_\_\_\_\_ Address and correct all alarms on unit. Note any critical alarms that need COH attention.
- 5 \_\_\_\_\_ Check proper operation of crank case heater.
- 6 \_\_\_\_\_ Check expansion tank sight glass level and condition.
- 7 \_\_\_\_\_ Submit repair Quote as required.

##### Chiller/Water-Cooled Screw/Stop

- 1 \_\_\_\_\_ Check main starter and control panel.
- 2 \_\_\_\_\_ Pressure test as required. Submit repair Quote to repair all leaks.
- 3 \_\_\_\_\_ Meg compressor motor.
- 4 \_\_\_\_\_ Replace oil filter and gaskets.
- 5 \_\_\_\_\_ Check oil pump for proper operation.
- 6 \_\_\_\_\_ Change or add oil as required.
- 7 \_\_\_\_\_ Test and calibrate all safety and interlocking controls.
- 8 \_\_\_\_\_ Check oil level and refrigerant charge.
- 9 \_\_\_\_\_ Check and clean condenser coil straighten fins are required.
- 10 \_\_\_\_\_ Test vent piping of relief valves.
- 11 \_\_\_\_\_ Clean all condenser tubes.
- 12 \_\_\_\_\_ Check superheat.
- 13 \_\_\_\_\_ Pickup all debris all clean chiller pad area either by sweeping, blowing or power washing.
- 14 \_\_\_\_\_ Replace coupler as needed.
- 15 \_\_\_\_\_ Submit repair quote as required.

##### Chiller/Water-Cooled Screw/pd

- 1 \_\_\_\_\_ Pull oil sample and test.
- 2 \_\_\_\_\_ CW eddy current testing (3 years).
- 3 \_\_\_\_\_ CHW eddy current testing (5 years).
- 4 \_\_\_\_\_ Vibration analysis (semi-annual).

##### Chiller/Water-Cooled/Monitor

- 1 \_\_\_\_\_ CHWS and CHWR temperatures.
- 2 \_\_\_\_\_ CWS and CWR temperatures.
- 3 \_\_\_\_\_ Oil Pressure.
- 4 \_\_\_\_\_ Vibration switch.
- 5 \_\_\_\_\_ Cooler and condenser approach.
  
- 6 \_\_\_\_\_ Discharge gas temperature.
- 7 \_\_\_\_\_ Install chemical pod and maintain all water treatment to chillers.

## EXHIBIT "A-2"

### A2.0 AIR COOLED RECIPROCATING CHILLERS AND STAND ALONE COMPRESSORS

#### A2.1 QUARTERLY PREVENTATIVE MAINTENANCE

##### Chiller/Air-Cooled/Operation

###### Chiller/Air-Cooled/Operation

- 1 \_\_\_\_\_ Cycle operating controls and check un-loaders. Check staging of compressors.
- 2 \_\_\_\_\_ Check belts, sheaves and mounts w/a.
- 3 \_\_\_\_\_ Visually inspect for refrigerant leaks. Submit repair Quote to repair all leaks.
- 4 \_\_\_\_\_ Inspect condenser coil and clean where applicable.
- 5 \_\_\_\_\_ Inspect fins and straighten as required.
- 6 \_\_\_\_\_ Check superheat and log operation.
- 7 \_\_\_\_\_ Check oil levels.
- 8 \_\_\_\_\_ Address and correct all alarms on unit. Note any critical alarms that need COH attention.
- 9 \_\_\_\_\_ Check proper operation of crank case heater.
- 10 \_\_\_\_\_ Check expansion tank sight glass level and condition.
- 11 \_\_\_\_\_ Submit repair Quote as required.

###### Chiller/Air-Cooled/Stop

- 1 \_\_\_\_\_ Inspect for refrigerant leaks. Submit repair Quote to repair all leaks.
- 2 \_\_\_\_\_ Check belts, sheaves and mounts, and alignment.
- 3 \_\_\_\_\_ Check compressor oil level, perform total line test, and meg hermetic motor.
- 4 \_\_\_\_\_ Change or add oil as required.
- 5 \_\_\_\_\_ Change refrigerant filter dryer as required.
- 6 \_\_\_\_\_ Check compressor crankcase heater operation.
- 7 \_\_\_\_\_ Check vibration eliminators.
- 8 \_\_\_\_\_ Inspect electrical connections, contactors, relays and operating/safety controls.
- 9 \_\_\_\_\_ Check and clean condenser fan blades as required.
- 10 \_\_\_\_\_ Check and clean condenser coil Straighten fins as required.
- 11 \_\_\_\_\_ Check operation of freeze protection heater on chiller barrel.
- 12 \_\_\_\_\_ Check superheat and log operation.
- 13 \_\_\_\_\_ Pickup all debris and clean chiller pad area either by sweeping, blowing or power washing.
- 14 \_\_\_\_\_ Check, lubricate for proper operation of the chill water pump and inspect and replace coupler as needed.
- 15 \_\_\_\_\_ Submit repair Quote as required.

###### Chiller/Air-Cooled/pd

- 1 \_\_\_\_\_ Pull oil sample and test (>30Ton – semi-annual, spectrochemical) (acid test if <30Ton)
- 2 \_\_\_\_\_ Vibration analysis (semi-annual) - screw only
- 3 \_\_\_\_\_ Install chemical pod and maintain all water treatment to chillers

###### Chiller/Air-Cooled/Monitor

- 1 \_\_\_\_\_ CHWS and CHWR temperatures

## EXHIBIT "A-3"

### A3.0 WATER COOLED RECIPROCATING CHILLER

#### A3.1 QUARTERLY PREVENTATIVE MAINTENANCE

##### **Chiller/Water-Cooled Reciprocal /Operation**

- 1 \_\_\_\_\_ Cycle operating controls and check unloaders. Check staging of compressors.
- 2 \_\_\_\_\_ Visually inspect for refrigerant leaks. Submit repair Quote to repair all leaks.
- 3 \_\_\_\_\_ Check superheat and log operation.
- 4 \_\_\_\_\_ Address and correct all alarms on unit. Note any critical alarms that need COH attention.
- 5 \_\_\_\_\_ Check proper operation of crank case heater.
- 6 \_\_\_\_\_ Check expansion tank sight glass level and condition.
- 7 \_\_\_\_\_ Submit repair Quote as required.

##### **Chiller/Water-Cooled Reciprocal /Stop**

- 1 \_\_\_\_\_ Inspect for refrigerant leaks. Submit repair Quote to repair all leaks.
- 2 \_\_\_\_\_ Check mounts and alignment.
- 3 \_\_\_\_\_ Check compressor oil level, perform total line test, and meg hermetic motor.
- 4 \_\_\_\_\_ Change oil and refrigerant filter dryer as required.
- 5 \_\_\_\_\_ Change or add oil as required.
- 6 \_\_\_\_\_ Check compressor crankcase heater operation.
- 7 \_\_\_\_\_ Check vibration eliminators.
- 8 \_\_\_\_\_ Check and clean condenser coil Straighten fins as required.
- 9 \_\_\_\_\_ Inspect electrical connections, contactors, relays and operating/safety controls.
- 10 \_\_\_\_\_ Visually inspect condenser tubes. Clean if required.
- 11 \_\_\_\_\_ Check superheat and log operation.
- 12 \_\_\_\_\_ Pickup all debris and clean chiller pad area either by sweeping, blowing or power washing.
- 13 \_\_\_\_\_ Check, lubricate for proper operation of the chill water pump and inspect and replace coupler as needed.
- 14 \_\_\_\_\_ Submit repair Quote as required.

##### **Chiller/Water-Cooled Reciprocal**

- 1 \_\_\_\_\_ Pull oil sample and test (annual)
- 2 \_\_\_\_\_ CHW eddy current testing (5 years)
- 3 \_\_\_\_\_ Vibration analysis (annual)

## **Chiller/Water-Cooled Reciprocal (CONTINUED)**

### **Chiller/Water-Cooled Reciprocal/Monitor**

- 1 \_\_\_\_\_ CHWS and CHWR temperatures
- 2 \_\_\_\_\_ CWS and CWR temperatures
- 3 \_\_\_\_\_ Install chemical pod and maintain all water treatments and chillers

## EXHIBIT "A-4"

### A4.0 CHILLER-WATER COOLED SCREW

#### A.4.1 QUARTERLY PREVENTATIVE MAINTENANCE

- 1 \_\_\_\_\_ Check and adjust operating and safety controls as necessary.
- 2 \_\_\_\_\_ Check operation of motor and starter.
- 3 \_\_\_\_\_ Inspect chiller and make adjustments as required.
- 4 \_\_\_\_\_ Address and correct all alarms on unit. Note any critical alarms that need COH attention.
- 5 \_\_\_\_\_ Check proper operation of crank case heater.
- 6 \_\_\_\_\_ Check expansion tank sight glass level and condition.
- 7 \_\_\_\_\_ Submit repair Quote as required.

#### **Chiller/Water-Cooled Screw/Stop**

- 1 \_\_\_\_\_ Check main starter and control panel.
- 2 \_\_\_\_\_ Pressure test as required. Submit repair Quote to repair all leaks.
- 3 \_\_\_\_\_ Meg compressor motor.
- 4 \_\_\_\_\_ Replace oil filter and gaskets.
- 5 \_\_\_\_\_ Check oil Pump for proper operation.
- 6 \_\_\_\_\_ Change or add oil as required.
- 7 \_\_\_\_\_ Test and calibrate all safety and interlocking controls.
- 8 \_\_\_\_\_ Check oil level and refrigerant charge.
- 9 \_\_\_\_\_ Check and clean condenser coil Straighten fins as required.
- 10 \_\_\_\_\_ Test vent piping of relief valves.
- 11 \_\_\_\_\_ Clean all condenser tubes.
- 12 \_\_\_\_\_ Check superheat.
- 13 \_\_\_\_\_ Pickup all debris and clean chiller pad area either by sweeping, blowing or power washing.
- 14 \_\_\_\_\_ Check, lubricate for proper operation of the chill water pump and inspect and replace coupler as needed.
- 15 \_\_\_\_\_ Submit repair Quote as required.

## Chiller/Water-Cooled Screw (CONTINUED)

### Chiller/Water-Cooled Screw/pd

- 1 \_\_\_\_\_ Pull oil sample and test.
- 2 \_\_\_\_\_ CW eddy current testing (3 years)
- 3 \_\_\_\_\_ CHW eddy current testing (5 years)
- 4 \_\_\_\_\_ Vibration analysis (semi-annual)

### Chiller/Water-Cooled Screw/monitor

- 1 \_\_\_\_\_ CHWS and CHWR temperatures
- 2 \_\_\_\_\_ CWS and CWR temperatures
- 3 \_\_\_\_\_ Oil pressure
- 4 \_\_\_\_\_ Vibration switch
- 5 \_\_\_\_\_ Cooler approach and condenser approach
- 6 \_\_\_\_\_ Discharge gas temperature
- 7 \_\_\_\_\_ Install chemical pod and maintain all water treatment to chillers

## EXHIBIT "A5"

### A5.0 AIR HANDLER UNIT

#### A5.1 QUARTERLY PREVENTATIVE MAINTENANCE

##### **AHU/Run**

- 1 \_\_\_\_\_ Check belts and sheaves. Replace and adjust as required.
- 2 \_\_\_\_\_ Check heating and cooling coils.
- 3 \_\_\_\_\_ Check and clean drain pan and drain lines.
- 4 \_\_\_\_\_ Check all control valves. Verify operation by Open-Close valve.
- 5 \_\_\_\_\_ Visually inspect dampers and linkages.
- 6 \_\_\_\_\_ Submit repair Quote as required.

##### **AHU/Stop**

- 1 \_\_\_\_\_ Check and clean fan assembly.
- 2 \_\_\_\_\_ Lubricate fan and motor bearings.
- 3 \_\_\_\_\_ Check fan speed controls where applicable.
- 4 \_\_\_\_\_ Check belts and sheaves. Replace and adjust as required.
- 5 \_\_\_\_\_ Check motor mounts and vibration pads.
- 6 \_\_\_\_\_ Inspect electrical connections.
- 7 \_\_\_\_\_ Lubricate and adjust dampers, actuators, and linkage.
- 8 \_\_\_\_\_ Check fan operation.
- 9 \_\_\_\_\_ Check and clean drain pan and drain lines.
- 10 \_\_\_\_\_ Check and clean heating and cooling coils.
- 11 \_\_\_\_\_ Inspect in-line pneumatic filters on controllers.
- 12 \_\_\_\_\_ Calibrate all controllers, transmitters, and receiver gauges.
- 13 \_\_\_\_\_ Check all control valves. Verify operation by Open-Close valve.
- 14 \_\_\_\_\_ Replace Air Filters. Mark installation date on filters
- 15 \_\_\_\_\_ Pickup all debris and clean area either by sweeping or blowing.
- 16 \_\_\_\_\_ Submit repair Quote as required.

##### **AHU/Monitor**

- 1 \_\_\_\_\_ Delta temperature for conditioned air
- 2 \_\_\_\_\_ Discharge air temperature
- 3 \_\_\_\_\_ Cold and hot deck air temperatures (multi-zone)
- 4 \_\_\_\_\_ Space temperature

EXHIBIT "A6"

A6.0 BOILER UNIT GAS

A6.1 QUARTERLY PREVENTATIVE MAINTENANCE

**Boiler/Gas Hot Water/On**

- 1 \_\_\_\_\_ Inspect boiler and burner and make adjustments as required.
- 2 \_\_\_\_\_ Test low water cut-off.
- 3 \_\_\_\_\_ Check operating and safety controls.
- 4 \_\_\_\_\_ Verify controller operation.
- 5 \_\_\_\_\_ Check all control valves. Verify operation and close-off.
- 6 \_\_\_\_\_ Lubricate all fans, motors, and blower wheel assembly bearings. Check for proper operation.
- 7 \_\_\_\_\_ Check for proper gas/air ratio mixture.
- 8 \_\_\_\_\_ Submit repair Quote as required.

**Boiler/Gas Hot Water/Off**

- 1 \_\_\_\_\_ Inspect fireside of boiler.
- 2 \_\_\_\_\_ Brush and vacuum soot and dirt from flues and combustion chamber.
- 3 \_\_\_\_\_ Inspect refractory for defects.
- 4 \_\_\_\_\_ Visually inspect boiler pressure vessel for possible leaks.
- 5 \_\_\_\_\_ Disassemble, inspect and clean low-water cutoff.
- 6 \_\_\_\_\_ Test pressure relief valve.
- 7 \_\_\_\_\_ Inspect, clean and lubricate the burner and combustion air equipment.
- 8 \_\_\_\_\_ Perform a flue gas analysis. Make adjustments.
- 9 \_\_\_\_\_ Check fuel piping for leaks and proper support.
- 10 \_\_\_\_\_ On fire tube boiler clean boiler tubes.
- 11 \_\_\_\_\_ Check expansion tank sight glass level and condition.
- 12 \_\_\_\_\_ Calibrate all controllers, transmitters, and receiver gauges.
- 13 \_\_\_\_\_ Check all control valves. Verify operation and close-off.
- 14 \_\_\_\_\_ Check, lubricate for proper operation of the hot water pump and inspect and replace coupler as needed.
- 15 \_\_\_\_\_ Pickup all debris and clean area either by sweeping, blowing or power washing.
- 16 \_\_\_\_\_ Inspect flame rod sensor and igniter for wear. Report findings.
- 17 \_\_\_\_\_ Submit repair Quote as required.

**Boiler/Gas Hot Water/Monitor**

- 1 \_\_\_\_\_ HWS temperature

**EXHIBIT "A-7"**

**A7.0 ELECTRIC BOILER UNIT**

**A7.1 QUARTERLY PREVENTATIVE MAINTENANCE**

**Boiler/Electric Hot Water/ On**

- 1 \_\_\_\_\_ Check amperage of elements and verify FLA.
- 2 \_\_\_\_\_ Test low water cut-off.
- 3 \_\_\_\_\_ Test pressure relief valve (humidity control only).
- 5 \_\_\_\_\_ Check operating and safety controls.
- 4 \_\_\_\_\_ Check and verify all electrical connections.
- 5 \_\_\_\_\_ Calibrate all controllers, transmitters, and receiver gauges.
- 6 \_\_\_\_\_ Check all control valves. Verify operation and close-off.
- 7 \_\_\_\_\_ Lubricate all fans, motors, and blower wheel assembly bearings. Check for proper operation.
- 8 \_\_\_\_\_ Submit repair Quote as required.

1 \_\_\_\_\_ **Boiler/Electric Hot Water/Off**

- 2 \_\_\_\_\_ Check amperage of elements and verify FLA.
- 3 \_\_\_\_\_ Visually inspect boiler pressure vessel for possible leaks.
- 4 \_\_\_\_\_ Disassemble, inspect and clean low-water cutoff.
- 5 \_\_\_\_\_ Test pressure relief valve.
- 6 \_\_\_\_\_ Check and verify all electrical connections.
- 7 \_\_\_\_\_ Inspect elements and contactors.
- 8 \_\_\_\_\_ Verify controller operation.
- 9 \_\_\_\_\_ Check all control valves. Verify operation and close-off.
- 10 \_\_\_\_\_ Check, lubricate for proper operation of the hot water pump and inspect and replace coupler as needed.
- 11 \_\_\_\_\_ Pickup all debris and clean area either by sweeping, blowing or power washing.
- 12 \_\_\_\_\_ Submit repair Quote as required.

**Boiler/Electric Hot Water/Monitor**

- 1 \_\_\_\_\_ HWS temperature

## EXHIBIT "A8"

### A8.0 COOLONG TOWER

#### A8.1 QUARTERLY PREVENTATIVE MAINTENANCE

##### **Cooling Tower/Operation**

- 1 \_\_\_\_\_ Inspect fan and motor.
- 2 \_\_\_\_\_ Check oil level in gear reducer. Add oil as required.
- 3 \_\_\_\_\_ Check intake strainer, bleed and overflow.
- 4 \_\_\_\_\_ Check operating conditions. Adjust as required.
- 5 \_\_\_\_\_ Clean basin as required.
- 6 \_\_\_\_\_ Clean float valve assembly and check for proper operation.
- 7 \_\_\_\_\_ Calibrate all controllers, transmitters, and receiver gauges.
- 8 \_\_\_\_\_ Check all control valves. Verify operation and close-off.
- 9 \_\_\_\_\_ Submit repair Quote as required.

##### **Cooling Tower/Stop**

- 1 \_\_\_\_\_ Check and clean strainers, bleed, nozzles, overflow and drain.
- 2 \_\_\_\_\_ Check and clean pump strainers.
- 3 \_\_\_\_\_ Lubricate fan and motor bearings. Check for vibration
- 4 \_\_\_\_\_ Check gear reducer components and change oil in gear reducer.
- 5 \_\_\_\_\_ Check motor mounts.
- 6 \_\_\_\_\_ Inspect electrical connections, contactors, relays and operating/safety controls.
- 7 \_\_\_\_\_ Check motor operation conditions. Check and replace belt as needed.
- 8 \_\_\_\_\_ Clean float valve assembly and check for proper operation.
- 9 \_\_\_\_\_ Clean louvers of scale.
- 10 \_\_\_\_\_ Check fan blade and attaching hardware.
- 11 \_\_\_\_\_ Calibrate all controllers, transmitters, and receiver gauges.
- 12 \_\_\_\_\_ Check all control valves. Verify operation and close-off.
- 13 \_\_\_\_\_ Pickup all debris and clean chiller pad area either by sweeping, blowing or power washing.
- 14 \_\_\_\_\_ Submit repair Quote as required.

### **Cooling Tower/pd**

- 1 \_\_\_\_\_ Vibration analysis (annual) - over 100 hp only
- 2 \_\_\_\_\_ Install chemical pod and maintain all water treatment to chillers

### **Cooling Tower/Monitor**

- 1 \_\_\_\_\_ CWS and CWR temperatures
- 2 \_\_\_\_\_ Vibration switch
- 3 \_\_\_\_\_ Gear box oil level switch
- 4 \_\_\_\_\_ Approach temperature

## EXHIBIT "A-9"

### A9.0 CONDENSING UNIT/WATER COOLED SCROLL

#### A9.1 QUARTERLY PREVENTATIVE MAINTENANCE

- 1 \_\_\_\_\_ Cycle operating controls. Check staging of compressors.
- 2 \_\_\_\_\_ Visually inspect for refrigerant leaks. Open WO to repair all leaks.
- 3 \_\_\_\_\_ Check superheat and log operation.
- 4 \_\_\_\_\_ Submit repair Quote as required.

#### **Condensing Unit/Wtr-Cooled Scroll/Stop**

- 1 \_\_\_\_\_ Inspect for refrigerant leaks. Open WO to repair all leaks.
- 2 \_\_\_\_\_ Check mounts.
- 3 \_\_\_\_\_ Check compressor oil level if applicable.
- 4 \_\_\_\_\_ Verify voltage/amperage.
- 5 \_\_\_\_\_ Inspect and oil circulation pump. Add s needed.
- 6 \_\_\_\_\_ Inspect electrical connections, contactors, relays and operating/safety controls.
- 7 \_\_\_\_\_ Visually inspect condenser tubes. Clean if required.
- 8 \_\_\_\_\_ Check superheat and log operation.
- 9 \_\_\_\_\_ Submit repair Quote as required.

## EXHIBIT "A-10"

### A10.0 PACKAGE UNIT

#### A10.1 QUARTERLY PREVENTATIVE MAINTENANCE

##### **Packaged Unit/Operation**

- 1 \_\_\_\_\_ Check belts and sheaves. Replace and adjust as required.
- 2 \_\_\_\_\_ Check heating and cooling coils.
- 3 \_\_\_\_\_ Check and clean drain pan and drain lines.
- 4 \_\_\_\_\_ Visually inspect for refrigerant leaks. Open WO to repair all leaks.
- 5 \_\_\_\_\_ Verify proper refrigerant charge and adjust as necessary.
- 6 \_\_\_\_\_ Check superheat and subcooling (7.5 tons and larger).
- 7 \_\_\_\_\_ Calibrate controllers, transmitters, and receiver gauges, w/a.
- 8 \_\_\_\_\_ Check all control valves. Verify operation and close-off.
- 9 \_\_\_\_\_ Submit repair Quote as required.

##### **Packaged Unit/Stop**

- 1 \_\_\_\_\_ Lubricate all fans, motors, and blower wheel assembly bearings. Check for proper operation.
- 2 \_\_\_\_\_ Check belts and sheaves. Replace and adjust as required.
- 3 \_\_\_\_\_ Check and clean all coils. Straighten fins as required.
- 4 \_\_\_\_\_ Lubricate and adjust dampers, actuators, and linkages.
- 5 \_\_\_\_\_ Check and clean drain pan and drain lines.
- 6 \_\_\_\_\_ Inspect for refrigerant leaks. Open WO to repair all leaks.
- 7 \_\_\_\_\_ Verify proper refrigerant charge and adjust as necessary.
- 8 \_\_\_\_\_ Check and test all operating and safety controls.
- 9 \_\_\_\_\_ Check compressor oil level, acid test oil and meg motor (7.5 tons and larger).  
Gas heat - Inspect heat exchanger. Remove and clean burner assembly. Inspect for proper operation.
- 10 \_\_\_\_\_
- 11 \_\_\_\_\_ Electric Heat - Inspect for proper operation. Inspect for proper operation.
- 12 \_\_\_\_\_ Inspect electrical terminals for overheating or discoloration, where accessible
- 13 \_\_\_\_\_ Check superheat and subcooling (7.5 tons and larger).
- 14 \_\_\_\_\_ Calibrate controllers, transmitters, and receiver gauges, w/a.
- 15 \_\_\_\_\_ Check all control valves. Verify operation and close-off.
- 16 \_\_\_\_\_ Replace Air Filters as needed.
- 17 \_\_\_\_\_ Submit repair Quote as required.

**Packaged Unit/Monitor/Record**

- 1 \_\_\_\_\_ Delta temperature for conditioned air
- 2 \_\_\_\_\_ Discharge air temperature
- 3 \_\_\_\_\_ Space temperature
- 4 \_\_\_\_\_ Compressor Amperage
- 5 \_\_\_\_\_ Condenser Fan Motor Amperage
- 6 \_\_\_\_\_ Blower Fan Motor Amperage

## EXHIBIT "A11"

### A11.0 Split DX Units

#### A11.1 QUARTERLY PREVENTATIVE MAINTENANCE

##### **Split DX Unit/Operations**

- 1 \_\_\_\_\_ Check belts and sheaves. Replace and adjust as required.
- 2 \_\_\_\_\_ Check heating and cooling coils.
- 3 \_\_\_\_\_ Check and clean drain pan and drain lines.
- 4 \_\_\_\_\_ CU: Visually inspect for refrigerant leaks. Open WO to repair all leaks.
- 5 \_\_\_\_\_ CU: Check superheat (7.5 tons and larger).
- 6 \_\_\_\_\_ CU: Check belts and sheaves w/a. Replace and adjust as required.
- 7 \_\_\_\_\_ CU: Inspect fins.
- 8 \_\_\_\_\_ Check all control valves. Verify operation and close-off.
- 9 \_\_\_\_\_ Submit repair Quote as required.

##### **Split DX Unit/Stop**

- 1 \_\_\_\_\_ Lubricate all fans, motors, and blower wheel assembly bearings. Check for proper operation.
- 2 \_\_\_\_\_ Check belts and sheaves, and replace/adjust as required. Check motor mounts and vibration pads.
- 3 \_\_\_\_\_ Inspect electrical connections.
- 4 \_\_\_\_\_ Lubricate and adjust dampers, actuators, and linkage.
- 5 \_\_\_\_\_ Check and clean drain pan and drain lines. Check and clean heating and cooling coils.
- 6 \_\_\_\_\_ Gas heat - Inspect heat exchanger. Remove and clean burner assembly. Inspect for proper operation.
- 7 \_\_\_\_\_ Electric Heat - Inspect for proper operation.
- 8 \_\_\_\_\_ Inspect electrical terminals for overheating or discoloration, where accessible
- 9 \_\_\_\_\_ CU: Inspect for refrigerant leaks. Open WO to repair all leaks.
- 10 \_\_\_\_\_ CU: Check superheat (7.5 tons and larger).
- 11 \_\_\_\_\_ CU: Check mounts and supports. Replace/adjust as required.
- 12 \_\_\_\_\_ CU: Lubricate fan and motor bearings w/a.
- 13 \_\_\_\_\_ CU: Check and clean fan blades as required.
- 14 \_\_\_\_\_ CU: Check and clean all coil(s). Straighten fins as required.

## Split DX Unit (CONTINUED)

- 15 \_\_\_\_\_ CU: Check vibration eliminators. Replace/adjust as required.
- 16 \_\_\_\_\_ CU: Check compressor oil level, acid test oil, and meg hermetic motor. Change oil and refrigerant filter drier as required.
- 17 \_\_\_\_\_ CU: Check and test all operating and safety controls.
- 18 \_\_\_\_\_ Inspect in-line pneumatic filters on controllers.
- 19 \_\_\_\_\_ Calibrate all controllers, transmitters, and receiver gauges.
- 20 \_\_\_\_\_ Check all control valves. Verify operation and close-off.
- 21 \_\_\_\_\_ Replace Air Filters as needed.
- 22 \_\_\_\_\_ Inspect for proper operation.
- 23 \_\_\_\_\_ Submit repair Quote as required.

### Split DX Unit/Monitor

- 1 \_\_\_\_\_ Delta temperature for conditioned air
- 2 \_\_\_\_\_ Discharge air temperature
- 3 \_\_\_\_\_ Space temperature
- 4 \_\_\_\_\_ Compressor Amperage
- 5 \_\_\_\_\_ Condenser Fan Motor Amperage
- 6 \_\_\_\_\_ Blower Fan Motor Amperage

## EXHIBIT "A-12"

### A12.0 ROOF TOP UNIT (RTU)

#### A12.1 QUARTERLY PREVENTATIVE MAINTENANCE

##### **Rooftop Unit/Oper**

- 1 \_\_\_\_\_ Check belts and sheaves. Replace and adjust as required.
- 2 \_\_\_\_\_ Check heating and cooling coils.
- 3 \_\_\_\_\_ Check and clean drain pan and drain lines.
- 4 \_\_\_\_\_ Visually inspect for refrigerant leaks. Open WO to repair to repair all leaks.
- 5 \_\_\_\_\_ Check superheat and subcooling (7.5 tons and larger).
- 6 \_\_\_\_\_ Calibrate controllers, transmitters, and receiver gauges, w/a.
- 7 \_\_\_\_\_ Check all control valves. Verify operation and close-off.
- 8 \_\_\_\_\_ Submit repair Quote as required.

##### **Rooftop Unit/stop**

- 1 \_\_\_\_\_ Lubricate all fans, motors, and blower wheel assembly bearings. Check for proper operation.
- 2 \_\_\_\_\_ Check belts and sheaves. Replace and adjust as required.
- 3 \_\_\_\_\_ Check and clean coils. Straighten fins as required.
- 4 \_\_\_\_\_ Lubricate and adjust dampers, actuators, and linkages.
- 5 \_\_\_\_\_ Check and clean drain pan and drain lines.
- 6 \_\_\_\_\_ Inspect for refrigerant leaks. Open WO to repair all leaks as found.
- 7 \_\_\_\_\_ Check and test all operating and safety controls.
- 8 \_\_\_\_\_ Check compressor oil level, acid test oil and meg motor (7.5 tons and larger).
- 9 \_\_\_\_\_ Gas heat - Inspect heat exchanger. Remove and clean burner assembly. Inspect for proper operation.
- 10 \_\_\_\_\_ Electric Heat - Inspect for proper operation.
- 11 \_\_\_\_\_ Inspect electrical terminals for overheating or discoloration, where accessible
- 12 \_\_\_\_\_ Check superheat and subcooling (7.5 tons and larger).
- 13 \_\_\_\_\_ Calibrate controllers, transmitters, and receiver gauges,w/a.
- 14 \_\_\_\_\_ Check all control valves. Verify operation and close-off.
- 15 \_\_\_\_\_ Replace Air Filters as needed.
- 16 \_\_\_\_\_ Submit repair Quote as required.

## Rooftop Unit (CONTINUED)

### RTU/monitor

- 1 \_\_\_\_\_ Delta temperature for conditioned air
- 2 \_\_\_\_\_ Discharge air temperature
- 3 \_\_\_\_\_ Space temperature
- 4 \_\_\_\_\_ Compressor Amperage
- 5 \_\_\_\_\_ Condenser Fan Motor Amperage
- 6 \_\_\_\_\_ Blower Fan Motor Amperage

## EXHIBIT "A-13"

### A13.0 SPACE HEATERS

#### A13.1 QUARTERLY PREVENTATIVE MAINTENANCE

##### **Space Heaters/Operations**

- 1 \_\_\_\_\_ Visually inspect heat exchanger
- 2 \_\_\_\_\_ Check all fans for proper operation
- 3 \_\_\_\_\_ Check damper and adjust as need for proper operation
- 4 \_\_\_\_\_ Check all controls for proper operation
- 5 \_\_\_\_\_ Open WO to repair or replace components as required.
- 6 \_\_\_\_\_ Check thermostat for proper operation
- 7 \_\_\_\_\_ Check for noise and vibration.
- 8 \_\_\_\_\_ Check mounting of unit for safety
- 9 \_\_\_\_\_ Inspect flue gas pipe for damage, corrosion, venting and connection.
- 10 \_\_\_\_\_ Check gas line for leaks and proper support  
Brush and vacuum unit of soot and dirt from flues and combustion
- 11 \_\_\_\_\_ chamber.
- 12 \_\_\_\_\_ Inspect refractory for defects
- 13 \_\_\_\_\_ Submit repair Quote as required.

**EXHIBIT "A-14"**

**A14.0 EXHUST FANS**

**A14.1 QUARTERLY PREVENTATIVE MAINTENANCE**

**Exhaust Fans/Operation**

- 1 \_\_\_\_\_ Check for proper operation of fan.
- 2 \_\_\_\_\_ Check for noise and vibration.
- 3 \_\_\_\_\_ Submit repair Quote as required.

**Exhaust Fans/Stop**

- 1 \_\_\_\_\_ Check belts and sheaves. Replace and adjust as required.
- 2 \_\_\_\_\_ Inspect blower wheel and bearing assy for wear.
- 3 \_\_\_\_\_ Clean blower wheel and motor vents as needed.
- 4 \_\_\_\_\_ Lubricate all bearings and motor assy as needed.
- 5 \_\_\_\_\_ Check for proper electrical connections
- 6 \_\_\_\_\_ Check that unit is secured to curb.  
Inspect curb and flashing for damage and report if needed.
- 7 \_\_\_\_\_
- 8 \_\_\_\_\_ Submit repair Quote as required.

## EXHIBIT "A15"

### A15.1 QUARTERLY PREVENTATIVE MAINTENANCE

#### Compressor-Dryer-PRV/Operation

- 1 \_\_\_\_\_ Comp: Drain tank and check traps.
- 2 \_\_\_\_\_ Comp: Check oil level and oil pressure.
- 3 \_\_\_\_\_ Comp: Check belt and sheaves and change as required.
- 4 \_\_\_\_\_ Comp: Inspect suction filter and change as required.
- 5 \_\_\_\_\_ Comp: Check motor operating conditions and lubricate as required.
- 6 \_\_\_\_\_ Comp: Check PE switch, starter, alternator (if not monitored).
- 7 \_\_\_\_\_ Dryer: Check temperature.
- 8 \_\_\_\_\_ Dryer: Inspect condenser and clean as required.
- 9 \_\_\_\_\_ Dryer: Check drain trap and bypass valves.
- 10 \_\_\_\_\_ PRV: Check particle filters. Change as required.
- 11 \_\_\_\_\_ PRV: Check oil filter. Change as required.
- 12 \_\_\_\_\_ PRV: Check low pressure safety valve.
- 13 \_\_\_\_\_ Submit repair Quote as required.

#### Compressor-Dryer-PRV/Stop

- 1 \_\_\_\_\_ Comp: Drain tank and check traps.
- 2 \_\_\_\_\_ Comp: Change oil and check oil pressure.
- 3 \_\_\_\_\_ Comp: Check belt and sheaves and change as required.
- 4 \_\_\_\_\_ Comp: Change suction filter as required.
- 5 \_\_\_\_\_ Comp: Check unloader and check valve.
- 6 \_\_\_\_\_ Comp: Check high pressure safety valve.
- 7 \_\_\_\_\_ Comp: Check motor operating conditions and lubricate.
- 8 \_\_\_\_\_ Comp: Check PE switch, starter and alternator.  
Check compressed air piping for moisture, oil or dirt. Inspect piping for leaks at  
restrictions. Open WO to make repairs as required.
- 9 \_\_\_\_\_
- 10 \_\_\_\_\_ Dryer: Check temperature.
- 11 \_\_\_\_\_ Dryer: Clean condenser and cover grilles.
- 12 \_\_\_\_\_ Dryer: Check drain trap and bypass valves.
- 13 \_\_\_\_\_ PRV: Check particle filters. Change as required.
- 14 \_\_\_\_\_ PRV: Check oil filter. Change as required.
- 15 \_\_\_\_\_ PRV: Check pressure reducing valve settings.

16 \_\_\_\_\_ check low pressure safety valve.

17 \_\_\_\_\_ Submit repair Quote as required.

**Compressor-Dryer-PRV/monitor**

1 \_\_\_\_\_ Bldg. air supply pressure

2 \_\_\_\_\_ Bldg. air supply moisture content

3 \_\_\_\_\_ Compressor on-cycle times

## EXHIBIT "A16"

### A16.0 PUMPS

#### A16.1 QUARTERLY PREVENTATIVE MAINTENANCE

- 1 \_\_\_\_\_ Inspect packing and seals
- 2 \_\_\_\_\_ Check pump alignment, and realign pump, as necessary. Record readings before work and after work
- 3 \_\_\_\_\_ Lubricate pump motor and bearings
- 4 \_\_\_\_\_ Check motor operating conditions, and make minor adjustments, as needed
- 5 \_\_\_\_\_ Check and hand tighten electrical connections
- 6 \_\_\_\_\_ Inspect couplings, and adjust couplings, if needed

**EXHIBIT "A-17"**

**A17.0 GENERAL VARIABLE AIR VOLUME BOXES PREVENTATIVE MAINTENANCE**

**A17.1 QUARTERLY PREVENTATIVE MAINTENANCE**

- 1 \_\_\_\_\_ Verify operation of system motor
- 2 \_\_\_\_\_ Lubricate motor bearing, if applicable
- 3 \_\_\_\_\_ Inspect for vibrations and unusual noises
- 4 \_\_\_\_\_ Check dampers and lubricate, if applicable
- 5 \_\_\_\_\_ Check electrical heat
- 6 \_\_\_\_\_ Inspect control and test
- 7 \_\_\_\_\_ Check calibration of controls and calibrate, if required

**EXHIBIT A-18**  
**HOUSTON INFORMATION TECHNOLOGY SERVICES (HITS) BARD HVAC**  
**PREVENTATIVE MAINTENANCE SERVICES**

**A18.0 SEMI-ANNUAL PREVENTATIVE MAINTENANCE SERVICES ON BARD UNITS**

**Unit/Operation**

1. \_\_\_\_\_ Check belts and sheaves; and replace and adjust as required.
2. \_\_\_\_\_ Check heating and cooling coils.
3. \_\_\_\_\_ Check and clean drain pan and drain lines
4. \_\_\_\_\_ Visually inspect for refrigerant leaks. Provide estimate to repair all leaks.
5. \_\_\_\_\_ Check superheat and subcooling (7.5 tons and larger).
6. \_\_\_\_\_ Calibrate controllers, transmitters, and receiver gauges.
7. \_\_\_\_\_ Check all control valves, verify operation, and close-off.

**Unit/Stop**

1. \_\_\_\_\_ Lubricate all fans, motors, blower wheel assembly bearings, and check for proper operation.
2. \_\_\_\_\_ Check for belts and sheaves, and replace and adjust as required.
3. \_\_\_\_\_ Check and clean coils, and straighten fins as required.
4. \_\_\_\_\_ Lubricate and adjust dampers, actuators, and linkages as applicable.
5. \_\_\_\_\_ Check and clean drain pan and drain lines.
6. \_\_\_\_\_ Inspect for refrigerant leaks. Provide repair quote to repair all leaks, if found.
7. \_\_\_\_\_ Check and test all operating and safety controls.
8. \_\_\_\_\_ Check compressor oil level, acid test oil, and meg motor (7.5 tons and larger).
9. \_\_\_\_\_ Gas heat – inspect heat exchanger and clean as required, and inspect for proper Operation.
10. \_\_\_\_\_ Electric heat – inspect for proper operation.
11. \_\_\_\_\_ Inspect electrical terminals for overheating or discoloration, where accessible.
12. \_\_\_\_\_ Calibrate controllers, transmitters and receiver gauges.
13. \_\_\_\_\_ Check all control valves, verify operation, and close-off.
14. \_\_\_\_\_ Replace air filters as needed.
15. \_\_\_\_\_ Submit repair quotes as required.

**Monitor**

1. \_\_\_\_\_ Delta temperature for conditioned air.
2. \_\_\_\_\_ Discharge air temperature.
3. \_\_\_\_\_ Space temperature.
4. \_\_\_\_\_ Compressor amperage.
5. \_\_\_\_\_ Condenser fan motor amperage.
6. \_\_\_\_\_ Blower fan motor amperage.

## PART 3

### FULL SERVICE MAINTENANCE SPECIFICATIONS FOR GSD AND VARIOUS DEPARTMENTS

#### OVERVIEW

Full Maintenance includes **all Preventative Maintenance in "Part 2"** and **Repairs "Part 1"** to maintain the specified equipment in acceptable condition as defined by the General Services Department. It also included the additional items listed below. The equipment requires a one (1) hour response time for breakdowns 24 hours a day, 365 days a year. A list of critical equipment, locations and maintenance schedule are specified in this section.

#### **1.0 EXISTING DEFICIENCIES:**

- 1.1 A deficiency is defined as a condition is discovered during the course of the inspection process or the Preventative Maintenance Inspection that the Contractor and the Facility Manager contends is applicable. Any discoveries that are not agreed upon; the Department Director or his designee shall review the report(s) and shall have the final decision.
- 1.2 Commencing on a mutually agreeable date, no later than seven (7) calendar days after receipt of the Notice to Proceed by the Contractor, and continuing until no later than forty-five (45) calendar days, the Contractor and Facility Manager or designee shall together make Inspection Plan of all HVAC systems and/or equipment covered by this Full Maintenance Speciation's. The purpose of the inspection shall be to discover and list all deficiencies that may exist in the systems and equipment covered by this Contract prior to commencement of any preventative maintenance or repair work. An Existing Deficiency Report (the "report") shall be generated and submitted to the appropriate Facility Manager.
- 1.3 No HVAC equipment, or its system component shall be repaired prior to performance of a complete Preventative Maintenance Inspection and service.

#### **2.0 EQUIPMENT INSPECTION:**

- 2.1 If the Contractor wishes to disassemble a piece of equipment in order to inspect its internal condition, the Contractor shall notify the Facility Manager to arrangements to accommodate the Contractor. Any such internal inspection of equipment or systems shall be accomplished solely at the Contractor's expense.
- 2.2 If damage is done during the disassembly or reassembly of equipment, system, auxiliary equipment, controls etc., the Contractor shall repair the equipment or system to its original condition at the Contractor's expense
- 2.3 If any deficiencies are identified during the performance of an internal inspection, the deficiencies shall be appropriately annotated, and the equipment shall be reassembled to its original condition at the Contractor's expense.
- 2.4 The Contractor shall list all deficiencies noted during the inspection, and prepare a Deficiency Report. Each deficiency listed on the report shall be signed by the afforested parties when completed, and each party shall retain one (1) fully executed copy. Within sixty (60) calendar days after the issuance of the Notice to Proceed, the Contractor shall prepare and submit a copy of the Deficiency Report with an attached list of repairs needed, and the Contractor's price (initial cost for parts plus Contract Fee Schedule "H" mark-up) for correcting each deficiency. The report

and attachments shall be submitted to the Facility Manager. The Contractor shall not charge the City for labor. This cost will already be compensated for in the regular monthly equipment service fee.

- 2.5 The Deficiency Report shall not contain an item that would be repaired, adjusted or replaced during the performance of normal preventative maintenance or service.
- 2.6 The Deficiency Report shall not include any conditions, findings, and/or recommendations that could be considered as retrofits or enhancements to the existing equipment/system design or operation.
- 2.7 Any deficiency identified during the course of any inspection that constitutes a safety hazard to either personnel, equipment or facility(ies) shall be immediately reported to the Department Director or designee(s).
- 2.8 All deficiencies noted in the report will be corrected as department resources become available, and as the Department deems appropriate. The department may elect to have any or all of the work performed by the Contractor at the price(s) quoted or by other means. The Contractor shall not correct any listed existing deficiency without the expressed written permission of the Director or designee(s).
- 2.9 When the department has corrected an existing deficiency, the Contractor shall assume full responsibility for maintenance and repairs to the equipment, except those repairs which may be covered under a warranty or guarantee agreement, at no additional cost to the department.

## PART 4

### WATER TREATMENT SERVICES FOR GSD AND VARIOUS DEPARTMENTS

#### 1.0 WATER TREATMENT:

- 1.1 The Contractor shall furnish all labor, tools, equipment including test, facilities, materials, chemicals, supervision, and transportation necessary to provide water treatment services to the locations for scale, corrosion, silt fouling, and algae control. Additionally, the Contractor shall be responsible for removal and disposal of empty drums.

#### 2.0 PROGRAM SPECIFICATIONS FOR CLOSED LOOP WATER SYSTEM:

- 2.1 Water treatment program for closed loop system shall include but not limited to:
- 2.1.1 Nitrite-based corrosion inhibitor,
  - 2.1.2 Maintaining the Hot Loop nitrite at the minimum acceptable level of 500 ppm,
  - 2.1.3 Maintaining the Chiller Loop nitrite at the minimum acceptable level of 250 ppm,
  - 2.1.4 Testing the loops at least quarterly,
  - 2.1.5 Corrosion rates on non-treated coupons shall not exceed 2 mpy for mild steel and 1 mpy for copper,
  - 2.1.6 Information from annual equipment inspections and vendor reports shall indicate systems are free from scale
  - 2.1.7 There shall be less than 500,000 aerobic organisms per ml for open systems; less than 1000 aerobic organisms per ml for closed systems: and less than 10 anaerobic organisms per ml for all systems.

#### 3.0 PROGRAM GOALS

- 3.1 The water treatment program recommended by the Contractor shall provide scale, corrosion and microbiological growth protection for condenser water systems, cooling towers, chillers, chilled water systems and hot water loops, while maximizing program safety, efficiency and performance.

#### 4.0 CONTRACTOR COMMITMENT:

- 4.1 The Contractors chemical program and consulting services are to keep/obtain clean heat transfer surfaces which are substantially free of scale, sludge, deposits, corrosion, pitting, and biological growth when treatment is administered in accordance with Contractors directions and recommendations.

#### 5.0 WATER CONSERVATION:

- 5.1 The Contractor shall make an effort to maximize cycles of concentration in the cooling tower system to minimize water, energy, and chemical consumption. This may not be done, however, at the expense of fouling, decreased energy efficiency or corrosion rates outside of the specification.

#### 6.0 HEALTH AND SAFETY:

- 6.1 Contractor shall provide Material Safety Data Sheets (MSDS) to ensure a safe work environment for personnel and to comply with all state and federal laws concerning the handling of hazardous materials. The City requires that Material Safety Data Sheets accompany all first time orders and that the contractor to operate a 24-hour, 7 day per week emergency phone number which can be called for emergency information regarding chemical spills and/or accidents involving materials.
- 6.2 All contractor representatives MUST BE Safety Trained and Certified in all aspects of chemical handling associated with water treatment. Documentation must be provided to certify contractor representative training completion date and follow-up on-going training.

**7.0 MONITORING AND CONTROL:**

7.1 The Contractor shall provide a comprehensive chemical testing program with written instructions and test procedures for all control tests. The Contractor shall also provide a summary chart with frequency and time of day for each test.

**8.0 FEED AND CONTROL EQUIPMENT:**

8.1 The Contractor shall supply facility with any chemical feed or control equipment that is required to assure reliable operation of the cooling systems. The Contractor shall review the benefits of installing this equipment and discuss any savings that will be realized as a result.

**9.0 MATERIAL CAPABILITY:**

9.1 The Contractor shall ensure that chemicals used in the water treatment program shall have no detrimental effect on the metallic or non-metallic materials in the equipment being treated when used in accordance with contractor's instructions. It is the City's responsibility to inform the contractor of all the materials contained in the system. The proposed chemical products must also be completely compatible with the existing chemical treatment program.

**10.0 CONTRACTOR QUALIFICATIONS:**

10.1 Service Representatives

10.1.1 Contractor shall have two (2) representatives who possess a degree in the field of engineering or chemistry with at least 5 years of experience in the water treatment industry who are representatives for the account. Contractor must reside within a two (2) hour radius from the facility and available seven (7) days per week for emergencies. Submittal of this capability should be included in the bid.

10.2 Local Manufacturing

10.2.1 Contractor shall have a local manufacturing and warehousing facility. Products used are to be stored at the local facility in large enough quantities to ensure availability.

10.3 Laboratory Capabilities

10.3.1 Contractor shall operate their own laboratory to perform all necessary water and deposit analysis. This should include microbiological analysis, corrosion coupon measurement, Legionella, metallographic analysis, general water analysis and deposit analysis.

**11.0 REPORTING AND COMMUNICATION REQUIREMENTS:**

11.1 Web Based Reporting

11.1.1 In order to facilitate communication, it is necessary to have all service reports available via a single secure website.

11.2 Program Administration

11.2.1 Organization is key to a well-run water treatment program. In order to have quick access to all technical and safety information regarding the water treatment program, the City shall require that the contractor provide an Administration Notebook. At the very least, this notebook shall contain an outline of the chemical program, all chemical control test procedures, Log Sheets, Product Bulletins, Material Safety Data Sheets, Feed and Control Equipment Specifications and Service Reports.

### 11.3 Service Plan

11.3.1 The Contractor shall develop a detailed service plan defining all services to be provided by the contractor and operations team. The Contractor's representation shall work with our facility management to clearly identify service and improvement projects that offer return on investment for the facility. The plan is to be documented in writing to insure the services and responsibilities outlined in this document as well as defined projects are completed to expectations and in a mutually agreeable timeframe. Contractor should provide an example of a service plan from a comparable facility.

### 11.4 Annual Contractor Review

11.4.1 The Contractor must present a yearly review of the treatment program. Contractor's representative shall meet at these times with the designated representatives of the facility's to discuss all treatment programs, their effectiveness and future objectives.

### 11.5 Quarterly Summary

11.5.1 The Contractor must present a quarterly review of the service reports, and trend graph of control parameters. The progress of the YTD Service plan goals should also be presented, with any analysis of the required tasks to date achieved. Contractor's representative shall meet at these times with the designated representatives of the facility's to discuss all treatment programs, their effectiveness, and future objectives.

### 11.6 Training

11.6.1 Regular training should include how to perform tests and monitor chemical program results, how to work safely with chemical products, and general training regarding cooling systems. Testing training shall include such tests which are required to satisfactorily monitor the treatment programs, i.e. conductivity, Silica, "M" alkalinity, hardness, iron, molybdate, nitrite, halogen and scale and corrosion inhibitor levels. The Contractor shall provide test kits including all necessary reagents for required tests.

### 11.7 Equipment Inspections

11.7.1 Thorough equipment inspection is important in determining the effectiveness of a water treatment program as well as potential operational problems for a given system. The Contractor shall provide a written statement of the condition of all equipment made available for inspection including any recommendations for operational changes or other modifications to programs or otherwise to effect improved operating efficiency.

## **12.0 COOLING SYSTEM SPECIFICATIONS:**

12.1 The condenser water treatment inhibitor must provide scale and corrosion protection that will achieve the desired performance of corrosion rates as outlined in this specification. With the provided makeup water quality, the program should average greater than 5 cycles of concentration.

12.1.1 Any solid chemical program shall be reviewed as an alternate submission only.

12.2 A bromine-based oxidizing biocide chemistry must be used; Chlorine bleach alone is not an alternative. Liquid bromine chemistry is required to minimize equipment and handling. Bromine pellets (powder or granular) shall only be proposed with a solid chemistry alternate program. The bromine must be fed at least three times per week. Slug doses of liquid bromine must be fed to 150 ppm to maintain a biocidal halogen level in the system. If necessary, the Contractor must supply a degassing pump for off-gassing liquids and insure safe injection that shall not impair piping condition.

12.3 The non-oxidizing biocide furnished shall be compatible with all other chemicals fed into the system. The non-oxidizing biocide shall be a broad-spectrum biocide effective at alkaline pH's. The product

shall be capable of being handled and administered safely to the systems by operating personnel. The non-oxidizing biocide shall be fed on a timer to a lethal dosage for the time necessary to provide effective system biocidal control as specified in the performance guidelines.

- 12.4 A biodispersant must be fed at least weekly to assist with bio-film penetration and removal.
- 12.5 Condenser Water Treatment Automation
- 12.5.1 A controller must be provided for direct control of the scale and corrosion inhibitor levels in the cooling tower system. A conductivity controller utilizing bleed/feed, percent time/bleed, or contacting head meter is not an acceptable alternative. A computerized monitoring and control system must be furnished that has the capability of controlling the cooling water chemical inhibitor level  $\pm 5$  ppm of total product AND active product. The control/monitoring system must be able to identify total product as well as active product. The real-time data must be continuously fed to a computer system that is capable of permanently storing the data. The data must also be accessible from a safe Internet site at all times. **Submit verification of this capability with the bid.**
- 12.5.2 Halogen levels must be controlled by either an on-line analyzer with continuous measurement or real-time control of microbiological activity. ORP control by itself is not acceptable. The real-time data must be continuously fed to a computer system that is capable of permanently storing the data. The data must also be accessible from a safe Internet site at all times. Actual microbiological levels (both bulk water and surface bacteria counts) are to be tested at least two times per year via laboratory reports to verify effectiveness of the program and performance to the specification.
- 12.5.3 Real-time corrosion measurement of mild steel and copper shall be utilized. The corrosion meters shall be able to show real-time corrosion rates locally at all times as well as sent to a computer system for data logging. The data shall also be accessible from a safe Internet site at all times.
- 12.5.4 The controller from above shall also be able to measure pH, turbidity & ORP. The data shall also be accessible from a safe internet site at all times.
- 12.5.5 All controllers shall be capable of notifying the chemical vendor and operations staff via pager or email during any alarm or upset condition; and data shall be accessible via the Internet.
- 12.5.6 The controllers and data collection/storage shall be stand-alone units, completely separate from the facility controls. Regular reports of key performance parameters (relative polymer consumption, corrosion rates and microbiological stresses) are to be automatically generated and sent to appropriate personnel.
- 12.5.7 Additional SPC software shall be available to accept manual testing results as well as controller measured data.
- 12.5.8 The Contractor shall have an expert center that operates 24/7 to ensure that someone is always watching the controlled system. These expert centers should be able to take immediate action on critical alarms and routinely make recommendations for operational improvements. This service team should be comprised of Chemical, Petroleum, and Environmental Engineers, Chemists and Microbiologists. This expert center should have real world experience in water treatment to form a team of highly trained specialists.
- 12.5.9 The Contractor shall provide a cellular gateway to allow the controller to be connected to the Internet for real-time alarm notifications to be sent out. In addition, connecting the controller to this gateway should allow the Contractor and facility engineer to view data and graphical reports on the internet and through scheduled email reports.
- 12.5.10 This gateway shall also allow for transmission of tank level monitoring. The tank level shall be visible on the internet site and provide alarms and data for feed rates and inventory levels.

12.5.11 Pumps: Chemical feed pumps, which are compatible with the specified controllers, shall be provided for each liquid condenser water chemical being fed. The pumps shall be sized to deliver adequate dosages in the appropriate time so as not to hinder the performance of the chemical. Off-gassing products shall have pumps manufactured for off-gassing chemical. Current pumps may be used if they meet this requirement for the products selected by the Contractor. Additional pumps shall be provided in the bid if needed.

12.5.12 Corrosion Coupon Racks: One-inch PVC corrosion coupon racks with isolation valves, visual 0-20 gpm flow determination, and four ports for at least mild steel and copper coupons complete with coupons must be provided for each condenser, hot, and chilled water system. The Vendor shall provide consultation on proper installation. (Alternative materials of construction must be used where pressure or temperature eliminates the use of PVC).

### **13.0 CHEMICAL STORAGE AND HANDLING:**

13.1 To reduce the facility's risk associated with drum handling, all product deliveries shall be made to the point of feed. To eliminate chemical handling by site personnel, all products must be capable of being fed neat (without dilution or contact) by operators. In order to minimize liability in this regard, the City requires the following regarding chemical delivery and storage:

13.1.1 Storage container construction material shall be stainless steel for chemical storage and have an appropriate internal lining if used to store corrosive chemical material. Where applicable, and with the approval of, large bulk containers may be of chemical proof materials, other than stainless steel, with cross-link Fiber Re-enforced Plastic construction.

13.1.2 Storage tanks shall have bottom drain capabilities to insure positive flooded suction for chemical pumping and injection and to allow complete emptying of the vessel.

13.1.3 Storage containers shall have a clear sight glass with inventory and drawdown capabilities for monitoring and control of the chemical program. With approval, other methods of level indication and drawdown may be substituted.

13.1.4 Contractor shall retain ownership of tanks and pumps and shall be responsible for all repair and replacement.

13.1.5 Tanks shall be vented and fitted with fume suppression equipment during delivery.

13.1.6 Contractor may choose to subcontract the delivery of chemicals. If Contractor chooses this, the subcontractor shall provide spill containment. The spill containment shall remain the property of the subcontractor. The spill containment must be sized appropriately. The Contractor or their subcontractor shall provide all fittings etc. The Contractor or their subcontractor shall provide all pickup equipment. The subcontractor shall be required to meet all the conditions set forth for the Contractor concerning compliance with the provisions of this solicitation, including but not limited to, Local, State and Federal laws and guidelines concerning the handling, licensing/certification, transport, delivery, and supply of any chemical associated with this bid.

13.1.7 Chemical deliveries/transfers shall be made with minimal risk of spill or failure. Drumless deliveries and/or transfers made without any mechanical components are required.

13.1.8 All tanks and pump skids must have secondary containment with positive seal to prevent spillage.

13.1.9 The Contractor shall provide a description of all proposed containers, their secondary containment, pumps, pump skids, level indication and draw-down capabilities with their submission.

13.1.10 All transportation personnel shall be Hazmat trained and certified.

**14.0 CLOSED LOOP SPECIFICATIONS:**

14.1 Closed Loop Water Treatment Chemicals

- 14.1.1 Closed loop systems shall have a Nitrite based inhibitor program. Alternate programs should be available for those loops that may have bacteria issues.

**15.0 PROGRAM SPECIFICATIONS FOR CLOSED LOOP WATER SYSTEM:**

15.1 Water treatment program for closed loop system shall include but not limited to:

15.1.1 Nitrite-based corrosion inhibitor.

15.1.2 Maintaining the Hot Loop nitrite at the minimum acceptable level of 500 ppm.

15.1.3 Maintaining the Chiller Loop nitrite at the minimum acceptable level of 250 ppm.

15.1.4 Testing the loops at least quarterly.

15.1.5 Corrosion rates on non-treated coupons shall not exceed 2 mpy for mild steel and 1 mpy for copper.

15.1.6 Information from annual equipment inspections and vendor reports shall indicate systems are free from scale.

15.1.7 There shall be less than 500,000 aerobic organisms per ml for open systems; less than 1000 aerobic organisms per ml for closed systems; and less than 10 anaerobic organism per ml for all systems.

**16.0 WATER TREATMENT TESTING PROCESS:**

16.1 Chiller that is in operation, turn off for 30 min. to 1 hour to create load.

16.2 Rinse sample bottles stored in controller cabinet.

16.3 fill sample bottles (2) to 20ML from sample port.

16.4 Chlorine test package, empty into (1) sample tube, mix and insert into chlorine meter (black). Target is 0. Log on log sheet result and rinse bottle.

16.5 Transfer remaining water sample from 20ML to (2) 10ML sample bottles.

16.6 Molyboenum (MO) 2 Reagent test package, empty into (1) 10ML sample bottle, mix and let set of approximately two (2) min.

16.7 Make remaining 10ML sample bottle an insert into pocket meter and zero out. Remove bottle and empty.

16.8 Take sample bottle with MO2 Reagent and insert into pocket meter and select read button. Log data on log sheet.

16.9 Handheld conductivity meter, fill with water from sample port, select (COND) button and compare reading to the controller reading. Any difference below 100 is acceptable. Log both readings on log sheet.

16.10 Log each controller settings on log sheet

- 16.11 Measure the quantity of each barrel with measuring stick and convert using conversion sheet. Log on log sheet.
- 16.12 Turn Chiller back on and ramp up to 100% and leaving water is 42/43 degrees. (Previous is Mandatory) Select Condenser screen and log small temperature difference as chiller approach.
- 16.13 Check PSI on pump gauges, anything less than 0 report to team ASAP to have strainers cleaned.
- 16.14 Check strainer basket on cooling tower and clean.
- 16.15 Wash and dry hand-held conductivity meter with fresh water.
- 16.16 Log on to eservicereport.com and document results from testing.
- 16.17 Once logged in, click main library, operator, create, input data from log sheet, (Sodium Nitrite is N/A), click closing comments, note hand held conductivity, and each controller settings and quantities. Any other important information.

**17.0 QUALITY ASSURANCE:**

- 17.1 The condenser water program proposed by the Contractor shall be capable of maintaining a corrosion rate of less than 2.0 mils per year for mild steel and less than 0.5 mils per year for copper in the cooling water system. The hot water and chilled water programs proposed by the Vendor shall be designed to maintain corrosion rates less than 1.0 mils per year for mild steel and 0.3 mils per year for copper. These rates shall be verified with corrosion coupon racks provided by the Contractor. Condenser water coupons must be analyzed two times per year with a minimum 90-day system exposure. A report of the coupon analytical results will be provided to the Owner or Owner's representative.
- 17.2.1 Condenser water microbiological growth levels will be maintained below 100,000 cfu's aerobic bacteria and 10 cfu's anaerobic bacteria. Hot and Chilled water microbiological growth levels will be maintained below 1,000 cfu's aerobic bacteria and 10 cfu's anaerobic bacteria. These levels will be determined with regular microbiological testing provided by the Vendor and performed on-site by Facility personnel monthly. Also, the Contractor shall perform independent analysis to verify results twice per year.

**18.0 ESCALATION:**

- 18.1 Contractors recommendations for repair changes and program improvements shall be acted upon by the facilities staff within one week. If at the next visit, the recommendation is not resolved, the Contractor shall escalate the recommendation to the supervisors and managers in an email and a phone call or face to face discussion. If that recommendation is not resolved by the third visit, the Contractor shall escalate the recommendation to the regional manager in an email and a phone call or face to face discussion.
- 18.1.1 This escalation pattern should also be documented in Service Reports and the Quarterly Review discussions.

**19.0 WATER TREATMENT TESTING PROCESS**

- 19.1 Chiller that is in operation, turn off for 30 min. to 1 hour to create load
- 19.2 Rinse sample bottles stored in controller cabinet
- 19.3 Fill sample bottles (2) to 20ML from sample port
- 19.4 Chlorine test package, empty into (1) sample tube, mix and insert into chlorine meter (black). Target is 0. Log on log sheet result and rinse bottle.

- 19.5 Transfer remaining water sample from 20ML to (2) 10ML sample bottles
- 19.6 Molybdenum (MO)<sub>2</sub> Reagent test package, empty into (1) 10ML sample bottle, mix and let set of approx. 2 min.
- 19.7 Make remaining 10ML sample bottle an insert into pocket meter and zero out. Remove bottle and empty.
- 19.8 Take sample bottle with MO<sub>2</sub> Reagent and insert into pocket meter and select read button. Log data on log sheet.
- 19.9 Handheld conductivity meter, fill with water from sample port, select (COND) button and compare reading to the controller reading. Any difference below 100 is acceptable. Log both readings on log sheet.
- 19.10 Log each controller settings on log sheet
- 19.11 Measure the quantity of each barrel with measuring stick and convert using conversion sheet. Log on log sheet.
- 19.12 Turn Chiller back on and ramp up to 100% and leaving water is 42/43 degrees. (Previous is Mandatory) Select Condenser screen and log small temperature difference as chiller approach.
- 19.13 Check PSI on pump gauges, anything less than 0 report to team ASAP to have strainers cleaned.
- 19.14 Check strainer basket on cooling tower and clean.
- 19.15 Wash and dry hand-held conductivity meter with fresh water.
- 19.16 Log on to [eservicereport.com](http://eservicereport.com) and document results from testing
- 19.17 Once logged in, click main library, operator, create, input data from log sheet, (Sodium Nitrite is N/A), click closing comments, note hand held conductivity, and each controller settings and quantities. Any other important information.

**EXHIBIT BB  
EQUIPMENT LISTS**

See Attachments in the e-bidding system.